. . . every week More reviews

Home Computing Weekly

An Argus Specialist Publication

No. 30
Sept 27-Oct 3, 1983

38p

Big value issue

PROGRAMS FOR:
Dragon, VIC-20, Spectrum, ZX81, Commodore 64

SOFTWARE REVIEWS FOR:
TI-99/4A, Spectrum, ZX81, Dragon, BBC, Commodore 64

Make a move into VIC-20 machine code

How to add more speed to your Commodore 64 programs

Letter writer to type in for the VIC-20

FREE gift to make more of your BBC micro

PLUS: lots of Micro Tips, Best Sellers, U.S. Scene, letters . . . and much more

J. MORRISON MICROS
FOR DRAGON 32
Vultures
Spectrum
HARD CHEESE
dK'tronics
TEXAS INSTRUMENTS
HOME COMPUTER
ORDINATEUR FAMILIAL
VIDEO CHESS
GREEDY GULCH
Spectrum
Maziacs
dK'tronics
Devils of the Deep
A stunning 3-D graphic adventure for the 48K Spectrum
RICHARD SHEPHERD SOFTWARE

Sinclair micros may go on sale in China

Sinclair may soon be selling home computers to China — depending on the results of a small-scale trial there of the ZX81 and Spectrum.

The company recently announced that it had shipped small quantities of components for the two machines to China for local assembly and sale.

If these first few machines catch on, Sinclair will have the chance of shipping larger quantities next year.

The idea for the trial came when Sinclair's managing director Nigel Searle visited Shanghai and Peking last month, and met Chinese officials.

The machines will be assembl-

Continued on page 5

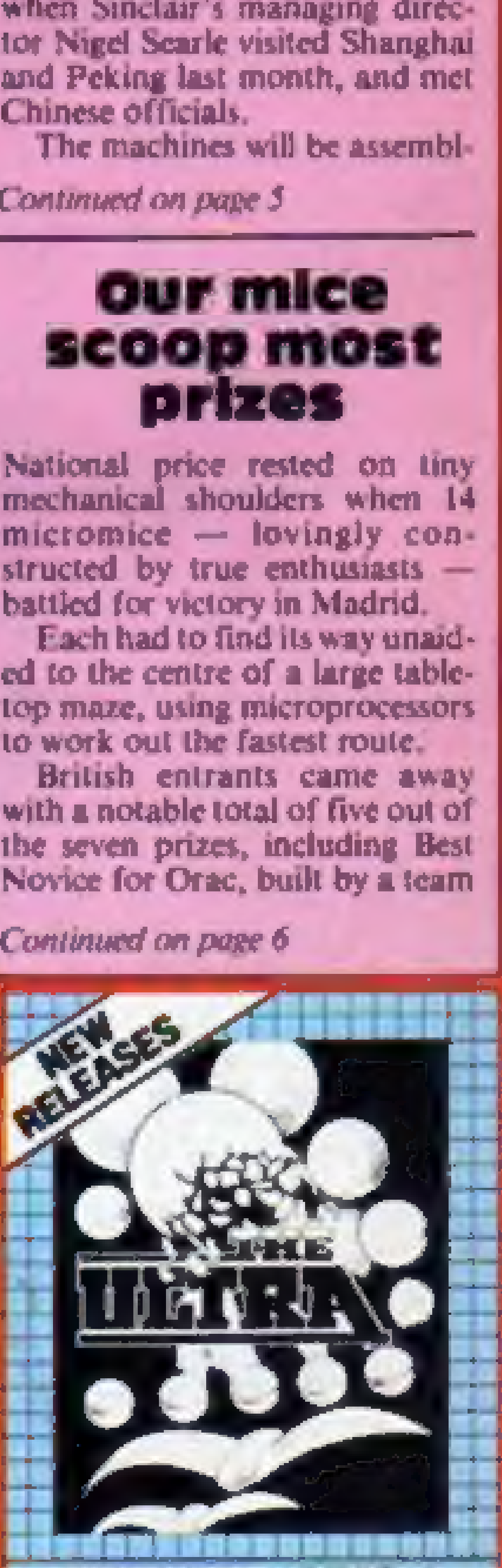
Our mice scoop most prizes

National price rested on tiny mechanical shoulders when 14 micromice — lovingly constructed by true enthusiasts — battled for victory in Madrid.

Each had to find its way unaided to the centre of a large tabletop maze, using microprocessors to work out the fastest route.

British entrants came away with a notable total of five out of the seven prizes, including Best Novice for Orac, built by a team

Continued on page 6


NEW RELEASES
THE ULTRA

NEW FOR ORIC 1
THE ULTRA 48K £6·95
AVAILABLE DIRECT FROM P.S.S.
PSS
CREDIT CARD SALES TEL (0203) 667556
CHEQUE OR P.O. TO P.S.S. 452 STONEY
STANTON RD COVENTRY CV6 5DG

SIMPLE TO USE

"It will have to be a special kind of game to compete with the quality you create yourself using this program."

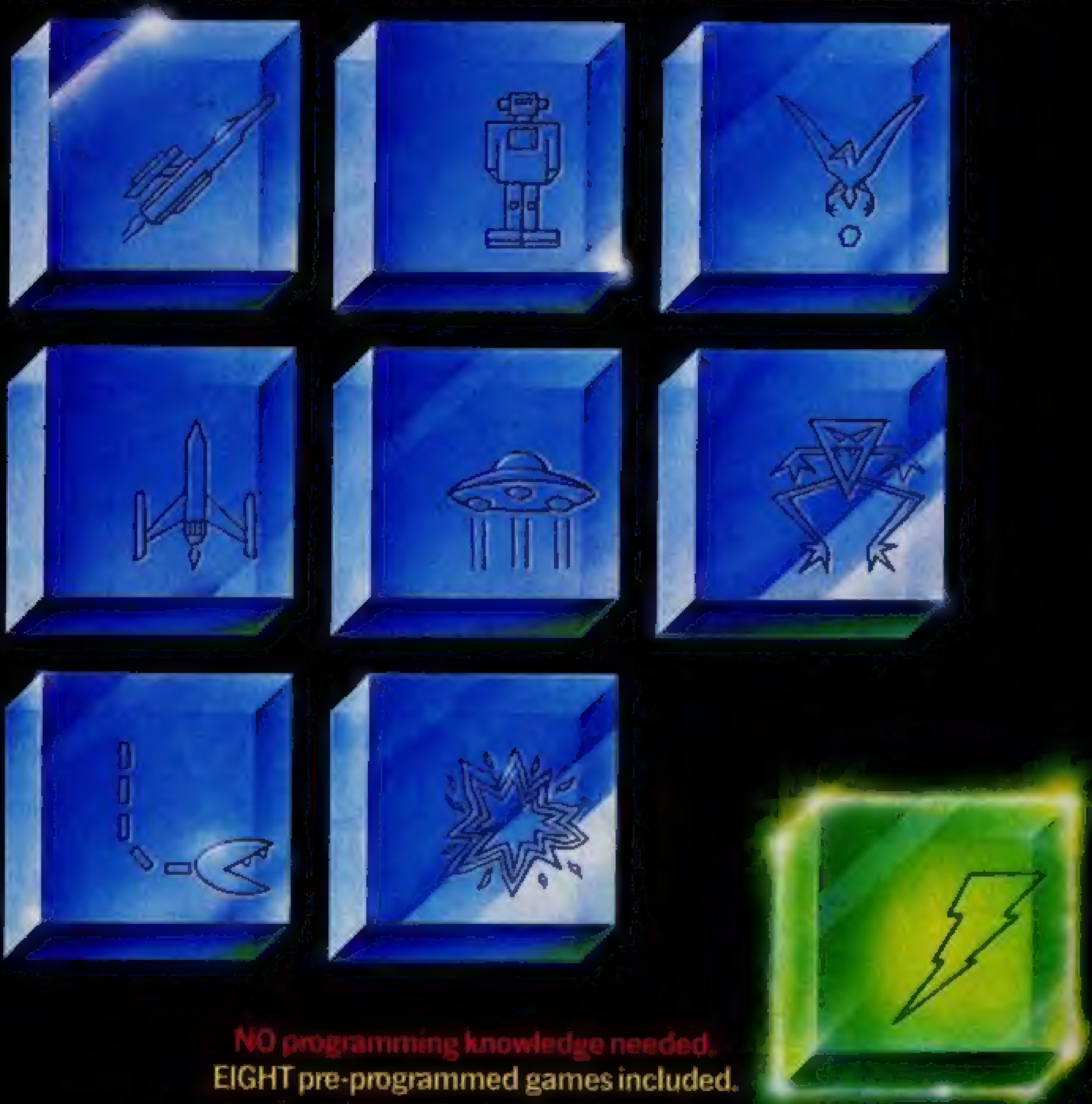
Software STUDIOS

Games Designer

By John Hollis – author of TIMEGATE

Create your own smooth SPRITE BASED MACHINE CODE Arcade Games.

Invaders/Galaxians type • Defender/Scramble type • Asteroids/Berserk type.



NO programming knowledge needed.

EIGHT pre-programmed games included.

Smooth arcade quality movement throughout using full colour sprites.

Design your own animated Aliens, Ships, Missiles, Robots, Explosions, Full Sound Generation, Scoring, Movement Control, Moving Background Option and Attack Wave Design.

Marketed exclusively by Quicksilva Ltd.

Name..
Address.......................................
....
....
....

I enclose cheque/P.O. for £14.95

Send to Software Studios,
Quicksilva Mail Order,
55 Haviland Road,
Ferndown Industrial Estate,
Wimborne, Dorset BH21 7PY
Telephone (0703) 20169

Boots, W.H. Smiths, J. Menzies, Microdealer, HMV, Hamleys, John Lewis, Computers for All and all reputable specialist computer stores.

48K SPECTRUM
£14.95

CONTENTS **September 27-Oct 3, 1983** **No. 30**

BUY THIS SPACE
To advertise
your latest products!
Ring Coleen or Barry on
01-437 1002 NOW!

Briefly

Could this be the program to end all programs? Software Studios' Games Designer is claimed to make it easy — and fun — to write your own games. There's a sprite editor, a sound editor, and a facility for producing special effects like a moving stars background. You can base your home-made games around four basic formats: Invaders, Scramble, Asteroids, and Berserk. And if you get tired of writing your own, there are eight ready-made games included as well. Games Designer is being marketed by Quicksilva, runs on the 48K Spectrum and costs £14.95. It was written by John Hollis, of QS.

Quicksilva, Palmerston Park House, 13 Palmerston Road, Southampton, Hants SO1 1LL

■ ■ ■

For Oric owners who want to find out a bit more about their machines, Linsac has brought out The Oric-1 Companion, a detailed technical guide. Contents include a full explanation of the Oric's keywords, screen display, memory, and ROM. There's also an assessment of the Oric-1 MCP-40 Colour Printer. Price £6.95.

Linsac, 68 Barker Road, Linthorpe, Middlesbrough, Cleveland TS5 5ES

■ ■ ■

Chalksoft says it has the first-ever educational adventure game in the form of Pirate, for the BBC micro and 48K Spectrum. Featuring full colour animation and sound, it aims to teach children strategic thinking, planning and map-making. It costs £9.25.

Chalksoft, 37 Willowslea Road, Worcester WR3 7QP

■ ■ ■

Lotus-soft is a new Spectrum software company based in West Wales. Its first offering, Lord Harry and Lady Harriet, is an animated cartoon maze game. A welcome feature for female computer owners, tired of games that seem to forget their existence, is the option to take the role of either Harry or Harriet, depending on which side of the tape is played.

Lotus-soft, 43 Maes Road, Llangennech, Llanelli, Dyfed SA14 8UH

Home Computing WEEKLY

News 5,6

Micro Tips 9

Spectrum software reviews 10

Dragon program 11
What's wrong with your car?

TI-99/4A cartridge reviews 15

Commodore 64 programming 17
Add more speed to your programs

VIC-20 program 19
Get ready for the Swarmers

Spectrum program 21
Watch him soar through the air

ZX81 programs 23

BBC software reviews 25

TI-99/4A program 26
Track down a chestful of doubloons

VIC-20 programming 29
Moving into machine code

Software reviews 33
Games for ZX81, Dragon, BBC, Spectrum, Commodore 64

Spectrum program 35
Polish up your pontoon

VIC-20 programs 38
Make cassette inserts, write neat letters

Letters 41

Best Sellers, U.S. Scene 42

VIC-20 program 44
First two of our four-part adventure

Spectrum software reviews 47

Profile: Lyversoft 49

Software reviews 50

Acting Editor:
Paul Liptrot
Assistant Editor:
Candice Goodwin
Designer:
Bryan Pitchford
Managing Editor:
Ron Harris

Advertisement Manager:
Coleen Pimm
Assistant Advertisement Manager:
Ricky Holloway
Classified Advertising:
Debra Stupple
Chief Executive:
Jim Connell

Argus Specialist Publications Ltd.
145 Charing Cross Road, London WC2H OEE. 01-437 1002

Home Computing Weekly is published on Tuesdays. Distribution by Argus Press Sales and Distribution Ltd, 12-14 Paul Street, London EC2A 4JS. Printed by Alabaster Passmore & Sons Ltd, of London and Maidstone, Kent. Design and origination by MM Design and Print, 145 Charing Cross Rd., London WC2H OEE

NEW FREE
CATALOGUE
24 PAGES OF
SPECTRUM BEST
01-789 8546
SOFTWARE SUPERMARKET

Start our great VIC-20 haunted house adventure — it begins on page 44

What's wrong with your car? The Dragon program, starting on page 11, will tell you

Meet the men behind Lyversoft on page 49

BBC Microcomputer System

OFFICIAL BBC COMPUTER DEALER

MODEL A AVAILABLE
£299 inc. VAT

This is the best microcomputer currently on the market. 32K RAM, 32K ROM, 8 modes of operation, full colour, full-size keyboard, internal expansions such as disc interface, speech synthesizer, Econet interface — In short it is a personal computer capable of expanding into a small business system

BBC Microcomputer Model B	£348 + VAT = £[illegible]
BBC Mod B + disk interface	£409 + VAT = £[illegible]
BBC Mod B + Econet interface	£389 + VAT = £447.35
BBC Mod B + disk and Econet interfaces	£450 + VAT = £517.50
BBC 100K disk drive	£230 + VAT = £264.50
BBC dual 800K disk drive	£699 + VAT = £803.85
Torch Z80 disk pack including Z80 2nd processor, 64K RAM and CPN operating system	£699 + VAT = £803.85
BBC Teletext receiver (Aug)	£196 + VAT = £225.40
BBC cassette recorder and lead	£26 + VAT = £29.90
Disk interface kit (free fitting)	£86 + VAT = £98.90
Mod A to Mod B upgrade kit	£50 + VAT = £57.50
Fitting charge for A to B upgrade kit	£20 + VAT = £23.00
16K memory upgrade kit	£20 + VAT = £23.00
Games paddles	£11 + VAT = £12.65
12" Monochrome monitor incl. cable	£89 + VAT = £102.35
16" Colour monitor incl. cable	£239 + VAT = £274.85
User guide	£10 + VAT = £10.00
Econet interface (free fitting)	£60 + VAT = £69.00
Speech interface (free fitting)	£47 + VAT = £54.05
BBC disk manual + formating disk	£30 + VAT = £34.50
Parallel printer cable	£10 + VAT = £11.50
BBC word processor (view)	£52 + VAT = £59.80
BBC Fourth language cassette	£15 + VAT = £17.25
BBC Lisp language cassette	£15 + VAT = £17.25

100% BBC COMPATIBLE MITSUBISHI AND TEAC SLIMLINE DISK DRIVES

These drives are supplied ready cased with all the necessary cables, formating program and user disk system guide.

There are some useful utilities included, e.g. Epson Screen Dump Program, Memory Dump, Free, Duplicate, Merge and Relocate. Power consumption of these drives is very low (0.2A typ. at + 12V, 0.4V typ. at + 5V per drive). Power is taken from the BBC computer.

Single drive 100K 40 tracks	£179 + VAT = £205.85
Dual drive 200K 40 tracks	£329 + VAT = £378.35
Single drive 400K 80 tracks	£239 + VAT £274.85
Single drive 400K 40/80 tracks switchable	£259 + VAT = £297.85
Dual drive 800K 80 tracks	£449 + VAT = £516.35
Dual drive 800K 40/80 tracks switchable	£469 + VAT = £539.35

✻ COMPLETE WORD PROCESSOR FOR ONLY £1,099 + VAT ✻

This package consists of BBC Microcomputer, View wordprocessor, 400K Slimline disc drive, High resolution 12" Green monitor, Juki 6100 18CPS Daisy Wheel printer and all the necessary cables and documentation. The above package can be supplied with components of your own choice, e.g. 800K disc drive or a different printer. Please phone us for a price for your particular requirement.

Special package deal £1,099 + VAT £1,263.85

PROFESSIONAL MONITORS

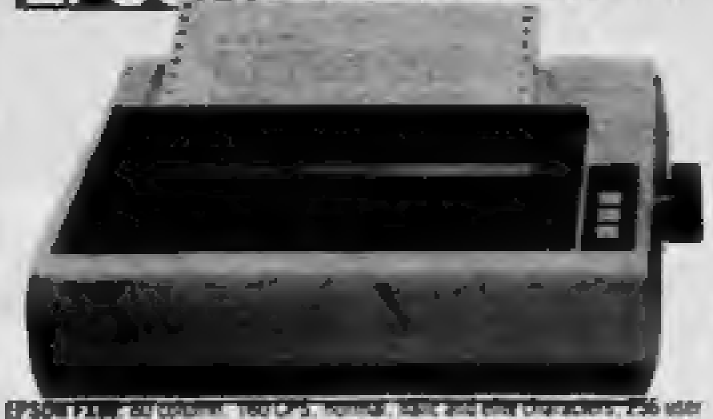
GREEN MONITORS
12" Green screen monitors with composite and sync. input. Suitable for most computers

- 18 MHz band width, high resolution £89 + VAT = £102.35
- 15 MHz band width, normal resolution £69 + VAT = £79.35

COLOUR MONITORS

- MICROVITEC RGB input 14" monitor supplied with RGB lead for BBC £239 + VAT = £274.85
- SANYO SCM 14" Normal res. 14", 400 dots, RGB input supplied with RGB lead £219 + VAT = £251.85
- SANYO SCM 14M Medium res. 14", 600 dots, RGB input supplied with RGB lead £299 + VAT = £343.85
- SANYO SCM 14H High res. 14", 800 dots, RGB input supplied with RGB lead £429 + VAT £493.35

EPSON FOR RELIABILITY



EPSON FX80: 80 column, 160 CPS, normal, italic and elite characters, 256 user definable characters, superscript, subscript, 11 x 9 matrix, bi-directional logic seeking, hi-res bit image printing (960 x 8 dots/line), friction and pinfeed, 9 international character sets, Centronic parallel interface
FX80 PRICE £349 + VAT £401.35

EPSON RX80: 80 column, 100 CPS, normal, italic and elite characters, 11 international character sets, hi-res bit image printing, bi-directional logic seeking, 4" to 10" adjustable pin feed, Centronic parallel interface
RX80 PRICE £249 + VAT £286.35

MX-100: 136 column, 10 CPS, friction and tractor feed, up to 15" adjustable carriage, hi-res bit image printing, true descenders, Centronic parallel interface
MX-100 PRICE £399 + VAT £458.85

RS232 Interface for all above printers	£55 + VAT = £63.25
Intelligent IEEE 488 interface	£65 + VAT = £74.75
Tractor feed for FX80	£79 + VAT = £90.85
Roll holder for FX80	£12 + VAT = £13.80
Ribbon for MX80, FX80, RX80	£8 + VAT = £9.20
Ribbon for MX100	£12 + VAT = £13.80

SEIKOSHA DOT MATRIX PRINTERS WITH HIGH-RES GRAPHICS

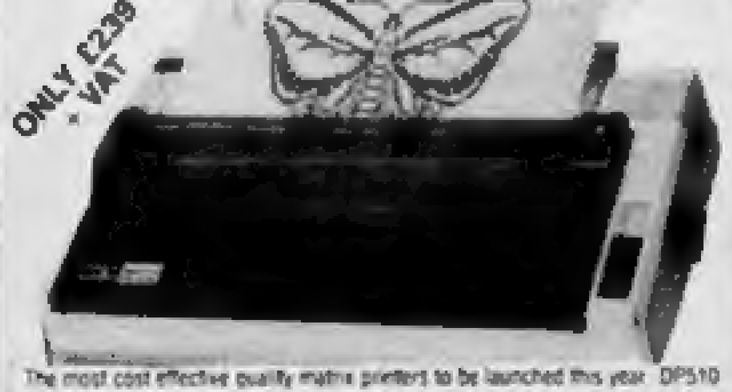
GP-100A 80 column, 50 CPS, dot addressable hi-res graphics, 10" wide, fully adjustable, tractor feed, 7 x 5 print matrix, Centronic parallel interface
GP-100A 50CPS PRICE £175 + VAT = £201.25

GP-250X 80 column, 50 CPS, 10" wide, fully adjustable, tractor feed, true descenders, 64 user definable characters, double height and/or double width printing, 8 x 5 print matrix, Centronic parallel and RS232 (serial) interfaces both included
GP-250X PRICE £219 + VAT = £251.85

NEW GP-700A 7 COLOUR PRINTER
This latest addition to Seikosha range gives you print in seven colours, 10" wide carriage, friction and tractor feed, 50 CPS print speed, dot addressable high-res graphics, 4 hammer printing mechanism, 10 CPI or 13.3 CPI, special Quite printing mode, Centronic parallel interface
GP-700A SPECIAL INTRODUCTORY PRICE £349 + VAT = £401.35

GUARANTEED LOWEST PRICES
We guarantee that our prices are the lowest on the market. If you can find any item advertised and in stock at less than our price we will match that price

NEW LOW PRICES ON STAR



The most cost effective quality matrix printers to be launched this year. DP510 and DP515 features include friction and tractor feed and roll holders as standard. 100 CPS print speed bi-directional logic seeking 9 x 9 matrix gives true descenders, 2.3K buffer as standard hi-res bit image plus block graphics, sub and super script, italic printing, auto underlining, vertical and horizontal tabulation, left and right margins set, skip over perforation, back space and self test.

STAR DP510 10" carriage 80 columns
SPECIAL PRICE £239 + VAT £274.85
STAR DP515 15" carriage 136 columns
SPECIAL PRICE £279 + VAT £320.85
RS232 INTERFACE FOR ABOVE £50 + VAT = £57.50

POCKET COMPUTERS AND CALCULATORS

- **CASIO PB-100** Basic language pocket computer, 544 program steps, Qwerty keyboard, 12 char display £34.75 + VAT = £39.95
- **CASIO FX-700P** Basic language, scientific functions, 1568 program steps, Qwerty keyboard, 12 char display £43.44 + VAT = £49.95
- **CASIO PB-300** Basic language computer, scientific functions, 1568 program steps, built-in mini printer, Qwerty keyboard, rechargeable batteries and charger, 12 char display £78.22 + VAT = £89.95
- **CASIO FA-3** Cassette adaptor for PB100, PB300, FX700 £17.35 + VAT = £19.95
- **CASIO FP-12** Printer for BB100 and FX700 £39.09 + VAT = £44.95
- **SHARP PC-1211** Basic language computer, scientific functions, 1424 program steps, 24 char display, Qwerty keyboard £60.83 + VAT = £69.95
- **SHARP PC-1251** Basic language computer, 4K RAM, 24K system ROM, 24 char display, Qwerty keyboard, user defined key, numeric pad £69.52 + VAT = £79.95
- **SHARP CE-125** Cassette recorder and mini printer for use with PC-1251, incl batt charger £86.91 + VAT = £99.95
- **SPECIAL PRICE** PC-1251 + CE-125 £146.95 + VAT = £169.00

TEXAS INSTRUMENTS TI 99/4A

This microcomputer is based on TMS9900 16-bit microprocessor. It includes 16K RAM, 16 colour high resolution graphic (192 x 256). The screen display is 32 characters, 24 lines TI-BASIC. Full-size keyboard. For Software there are about 1000 programs to choose from. There are a lot of peripherals available, e.g. Disk Drives, Disk Interface, Speech Synthesizer, [illegible] Language (PASCAL, TI-LOGO, ASSEMBLER).

Title	Description	Price inc VAT
TI99/4A	Complete with UHF modulator and power supply	£89.95
PERIPHERALS		
Speech Synthesizer	When used with selected modules will reduce electronic speech	£41.95
Peripheral Expansion System	This unit takes all card peripherals and an internal disk drive	£144.95
Disk Drive – Internal	92K formatted drive, mounts internally in peripheral expansion system	£179.95
Disk Controller Card	Controls up to 3 disk drives, complete with disk manager command module	£149.95
Disk Drive Double Sided	92K formatted capacity per side acts as 2 drives DSK1 & DSK2 total capacity 184K bytes	£219.95
Disk Drive External	Complete with own case, power supply & connecting cables	£299.95
RS232 Expansion Card	Provides 2 serial RS232 ports and one parallel port for interfacing	£109.95
RAM Expansion Card	Adds 32K bytes extra RAM bringing total capacity to 48K bytes	£124.95
P-Code Card	Includes the UCSD-PASCAL P-code interpreter	£189.95
Matrix Printer	80 column matrix printer pinter GP-100A + cable	£219.95
Matrix Printer GP250X	80 column matrix printer with RS232 and Centronic parallel interface	£273.95
Epson RX80 Printer	80 column, 100 CPS matrix printer	£329.95

Please send S.A.E. for software prices

THE AFFORDABLE DAISYWHEEL PRINTER

ONLY
£369
+ VAT

- ★ 18 CPS – Bi-Directional Logic Seeking
- ★ 10, 12, 15 CPI + Proportional Spacing
- ★ "Drop in" Daisywheel – Triumph Adler Compatible
- ★ Supports all Wordstar features
- ★ Diablo protocols – IBM Selectric ribbon
- ★ 2K Buffer as standard – 100 character Daisywheel

SPECIAL OFFER JUKI 6100 DAISYWHEEL £369 + VAT = £424.35

THE CP80 QUALITY PRINTER

ONLY
£239
+ VAT

- ★ 80 CPS – Bi-Directional Logic Seeking 80 Column
- ★ Friction and Adjustible Tractor Feed
- ★ Patented Square Needles up to 9 x 13 matrix
- ★ Hi-Res Graphics and Block Grphics

SHINWA CP80 PRINTER £239 + VAT £274.85
SPARE RIBBON FOR CP80 £5 + VAT = £5.75

NEC 8023BE-C PRINTER

This is a high speed printer using bi-directional logic seeking operation. 7 x 9 matrix for alphanumerics, 8 x 8 for graphics and bit image printing. Programmable paper feed, original plus three copies. Greek characters and high resolution graphics. The print quality is exceptional, and the price is affordable.

Price £299 + VAT = £343.85

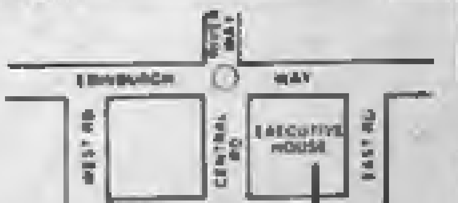
- ★ OKI Microline 80 Printer £199 + VAT = £228.85
- ★ OKI Microline 82A Printer £329 + VAT = £378.35
- ★ Dragon 32 Computer £139 + VAT = £159.85

Akhter Instruments Limited

DEPT. CT, EXECUTIVE HOUSE, SOUTH RD.,
TEMPLEFIELDS, HARLOW, ESSEX CM20 2BZ. UK.
TEL: HARLOW (0279) 443521 OR 412639
TELEX 995801 REF – A18

ORDERING INFORMATION
All orders which accompany a cheque, cash or postal orders are *CARRIAGE FREE* (UK only). Please make cheques and postal orders payable to "AKHTER INSTRUMENTS". A carriage charge of 3% of invoice total is applicable to BARCLAYCARD and ACCESS orders. We accept official orders from Government and Educational establishments. We accept VAT FREE EXPORT orders, please phone or write to check shipping cost.

OPENING HOURS: MON-FRI 9am-5.30pm, SAT 10am-2pm.
We welcome callers, no parking problems.



Sinclair's first screen pocket TV — smaller than an average paperback

China

From front page

ed by the South China Computer Company, which is a division of the Chinese government ministry of electronics.

They will, according to a Sinclair spokesman, be exactly the same as the Sinclair machines on sale in the UK — so the Chinese will have to learn to program in BASIC.

But the language barrier shouldn't prove too much of a problem if the Japanese, who are already buying Sinclair computers, are anything to go by.

The huge Chinese market would represent a tremendous opportunity for Sinclair, but the company stressed that it would not know whether it could go ahead until next year.

But if the answer is yes, as agenda for continuing discussion has already been worked out between Sinclair and the Chinese government.

The announcement of the Chinese deal was followed by the public debut of Sinclair's flat-screen pocket TV at the Home Entertainment Spectacular held at London's Olympia.

The TV measures 5½ in by 3¼ in by 1¼ in and weighs 9½ ounces. It has a Polaroid flat-battery which is said to last for 15 hours, and a mains adaptor is also available.

The new TV is to go into full production shortly, but initial supplies will be limited, and available by mail order only. Application forms for the TV, which costs £79.95, can be obtained from Sinclair.

Sinclair Research, Stanhope Road, Camberley, Surrey GU15 3PS

Oric discounts

Oric Specialist Kenema is offering a 50% discount on its products to signed-up members of the Tangerine Users Group. Just give your membership number, and you'll be entitled to 50% off Kenema's software range, plus hardware add-ons such as a voice synthesiser and motherboard.

Kenema, 1 Marlborough Drive, Worle, Avon BS22 0DQ

Lynn Nixon, Ann Mortimer and Patricia Lansdowne — the brains behind Cheshire Cat

The cat that ate the cream

Cheshire Cat educational software has a lot to smile about. Just a year after work began on the series, it has made the all-important break into chain store sales, under the Ampalsoft label.

Better still, one of the programs in the range, Basic Tutorial, has been featured by Boots in a special Dragon promotional campaign.

Cheshire Cat was the brainchild of Lynn Nixon, Ann Mortimer and Patricia Lansdowne.

Between them, the three women have seven children — Lynn and Ann have two and Patricia has three.

Patricia said: "That was one of the main reasons why we decided to start Cheshire Cat. We all had Dragons at home, but there was just no good educational software out for the Dragon that the children could use."

Patricia and Ann used to run a computer bureau together, and Patricia met Lynn, a former programmer at UMIST, because their daughters were in the same class at school.

The three decided to combine their talents to produce some educational programs. They enlisted the help of friends in teaching, programming and business, and Cheshire Cat is now growing rapidly.

Each program may involve as many as seven people, and is tested thoroughly before it goes on the market. According to Patricia: "We use our own children to test the programs under all conditions. They're all very used to computers now — they aren't frightened of them at all."

There are three Cheshire Cat programs currently on sale — Maths Level 1 for five to six year olds, Basic Tutorial and Advanced Basic Tutorial.

Due out soon are Maths Level 2, for seven to eight year olds, Maths O-level Revision 1, and Super Spy, a modern history simulation.

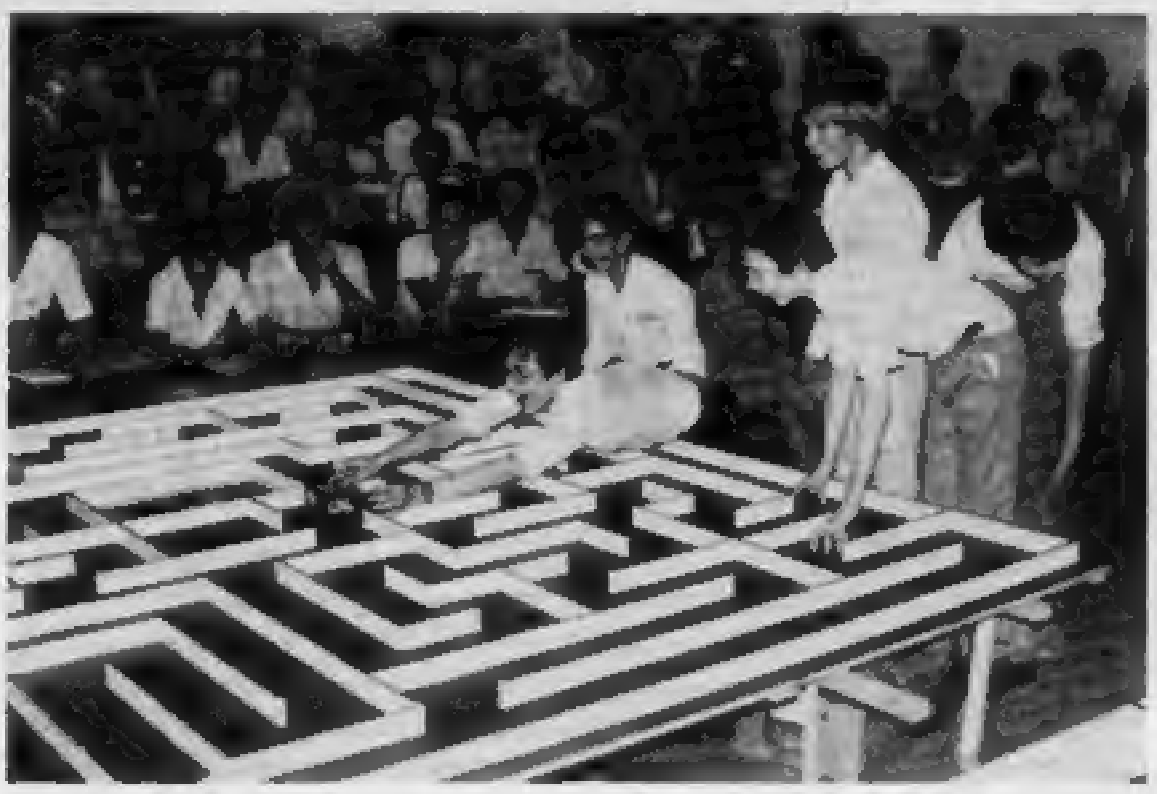
Not to be confused with the Richard Shepherd adventure game of the same name, Super Spy involves you taking the role of a German spy parachuted into Glasgow.

Cheshire Cat's plans for the future include O-level programs on French, German, and Geography, plus beginners' programs on physics, chemistry computer science and general science.

Ampalsoft, PO Box 19, Knutsford, Cheshire WA16 0HE

CTRL (Graphics)	144 Nothing	145 Red	146 Green	147 Yellow	148 Blue	149 Magenta	150 Cyan	151 White	152 Conceal	153 Contiguous
SHIFT Alphanumeric)	128 Nothing	129 Red	130 Green	131 Yellow	132 Blue	133 Magenta	134 Cyan	135 White	136 Flash	137 Steady
USER ROGRAMMED										

This function key guide for the BBC micro tells you the functions of the 10 keys when the computer is in mode 7. Just slip it under the clear plastic strip above the keys. You can use two functions together — for example, flashing red. The other side is blank for you to write in your user-defined functions. The guide was prepared by BBC micro specialists Micro-Aid, 25 Fore Street, Praze, Camborne, Cornwall TR14 0JX



Orac with the team that built it

Micromice

From front page

of teenagers and sponsored by software house CRL.

But, as expected, the Finnish team scooped the two main prizes. Their Tellu, a three-wheeler with no less than 19 infra-red sensors, took just 32 seconds to complete the course and win 1,000 dollars.

Its twin, Manu, was unplaced. In fact, the only difference between the two was a different processor board.

Microsaurus, also from Finland, was the favourite in trials, with times of around 15 seconds. But it came second in the final and won a Spectrum.

It had taken a year of part-time work by four university students to build. They had packed hundreds of pounds-worth of equipment into their mouse: four ultrasonic sensors, 20 infra-red sensors, a Motorola processor, 4K of RAM, five servo motors, and four DC motors.

Knownaim, one of two entrants by Dave Woodfield, won £150 for being placed third. A three-wheeler, driven and steered by the front wheel, it uses eight infra-red sensors and a Z80 processor.

And his Thumper, which won the European finals in 1981 in Paris, came fourth. It was Thumper which got the most laughs, because Dave had added a Votrax speech chip.

As Thumper, a four-wheeler, trundled around the maze it "spoke" sentences like: "I wonder why the other mice don't speak to me", "I've been here before" and "I don't like bends." Its maze program was written by Andrew Keatley.

T3, placed fifth, was constructed by another veteran, Alan Dibley. In fact Dave and Alan and their families had travelled together in a hired minibus, taking the ferry to Santandar from Plymouth.

T3's best time to the centre of the maze was 1 min 13.8 secs, just 1.2 secs slower than Thumper. Using the guts of a ZX81, T3 was one of three entered by Alan.

T3, 1982 UK champion, also has three wheels but, unlike his T4, stops before making a turn. His Thezeus, controlled by a ZX80 with the keyboard removed with a hacksaw, was unplaced.

Orac, winner of the Best Novice prize, raised a gale of laughter from the hundreds in the lecture hall audience — all delegates to a high-powered computer conference.

Built in the shape of a two-wheeled black box and wearing the CRL logo, Union Jack and L-plate, Orac was made by five Ilford school pupils.

They are Matthew Hampson, 14, and Edmund Forrester, Michael Geaney, Jay Derrett and Andy Dukes, all 15.

CRL's managing director, Clement Chambers, who financed the work and the team's trip, had a proud look on his face.

Second in the Best Novice section was Fully Automatix II, entered by David Jones and Jonathan Holt, both 16, and William Forster, 17, all from a school in Penley, near Wrexham.

As well as their prizes, each winning team was also presented with a novel trophy — a wedge of gold-coloured "cheese" mounted on a wooden base. Next year's contest will be held in Copenhagen.

The micro that has everything?

Elan's new personal computer, previewed in HCW 24, had now been officially unveiled — but you won't be able to buy it until next March.

Called the Elan Enterprise, it comes in two versions. The 64K version will cost around £200 and the 128K version £300.

As we told you, it has a real keyboard, with eight user definable keys. It also has a built-in joystick.

The Enterprise can display up to 84 columns by 56 lines of text, enabling business applications such as word processing to be carried out easily. And to make the most of that display, it comes with a built-in word processor on ROM.

But if you just want to play games, there are plenty of features to appeal to you too. Like the Atari 400/800, the Enterprise has dedicated sound and graphics chips, separate from the main processor. A first for Elan is the capability for stereo sound.

And when it comes to linking the Enterprise to peripheral equipment, there are plenty of possibilities too. You can connect up two joysticks, and two separate cassette recorders, which can both be started and stopped under computer control.

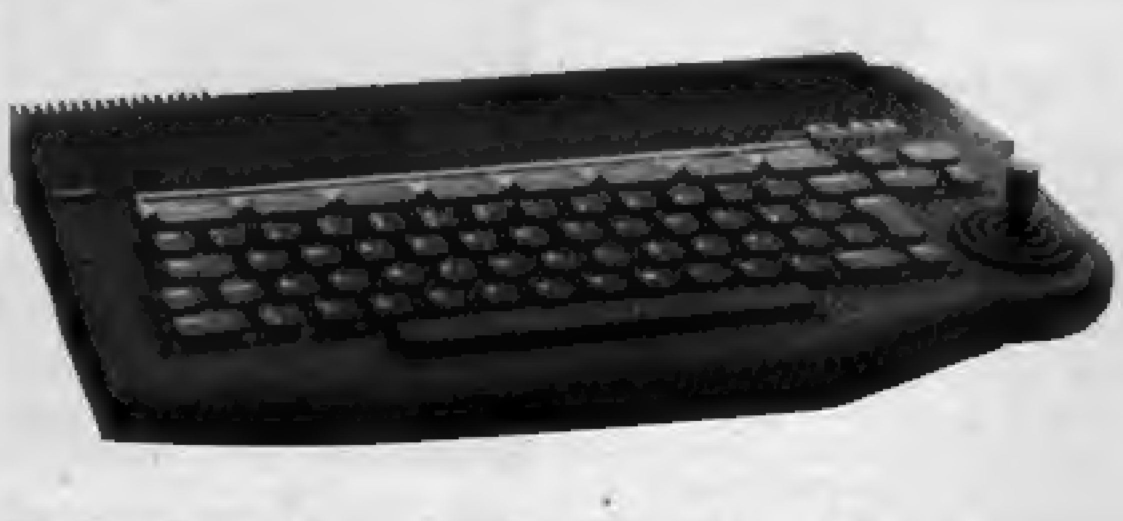
It has a Centronics parallel and RS423 serial interfaces, allowing you to connect up a range of printers. A local network facility will let 32 computers communicate and share peripherals.

There's a slot for cartridges one side, and on the other, a 64-way connector to link up to peripheral devices via a flexible cord.

The Elan peripheral units, such as extra RAM and disk drives, will be designed to plug into each other to form a neat stack.

The base of the stack is a special unit to provide power for the peripherals.

Elan Computers, 31-37 Hoxton Street, London N1 6NJ



The Elan Enterprise — a lot of memory at a low price

Games of the unexpected

for the unafraid...

THE WHITE BARROWS

Somewhere amid this maze of burial chambers lurks an Evil Sorcerer whom you need to trap. Trouble is, he's protected by Trolls, Dwarves, Serpents and the occasional Dragon or two! Your magic staff will block the tunnel to prevent him escaping unless, that is, he outwits you.

A real brain twister, White Barrows requires both brains and brawn from its players. It's no good just hacking your way through the Barrows and hoping to fall over the Sorcerer. Eventually you'll meet a Dragon, and they don't hack easily! You'll need all your strength and cunning to survive this one for long.

THE WHITE BARROWS Only £6.50 all inclusive!

CELLS AND SERPENTS

More monsters than you ever thought could live behind your keyboard. Wander the hills in search of gold and glory but be very, very careful where you tread! There are things here that will make your wildest nightmares look like Julie Andrews. Fancy meeting a Mind Flyer, for example? Or how about shaking hands with an Asmodeus? (You'll only do that once!) Treasure is here to be found though. . . the hard way.

See just how good you really are at adventuring with this practically unsurvivable fantasy. Not for the faint of heart or the slow of sword.

CELLS AND SERPENTS Only £6.50 all inclusive!

*** SPECIAL DEAL ***

Both programs for only £11.45 all inclusive!

Our Adventure Series programs are available on tape for the following systems: Commodore VIC-20 (not available for White Barrows), Commodore PET, Sharp MZ-80A and MZ-80K, Tandy TRS-80 Model 1, BBC Model B or 32K Model A, Atari 400 and 800, Sinclair 48K ZX Spectrum.

ASP Software, ASP Ltd,
145 Charing Cross Road, London WC2H 0EE

Please send me . . . tape(s) of the following programs:
The White Barrows . . . . @ £6.50 each
Cells and Serpents . . . . @ £6.50 each
Both tapes at special price . . . . only £11.45
My system is a . . . . computer

TRADE ENQUIRIES WELCOME

I am enclosing my Cheque/Postal Order/Money Order (delete as necessary) for £ . . . (payable to ASP Ltd);
OR Debit my Access/Barclaycard (delete as necessary)
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Please use BLOCK CAPITALS and include your postcode
NAME (Mr/Ms) . . . .
ADDRESS . . . .
. . . .
. . . . POSTCODE . . . .
Signature . . . . Date . . . .

NEW HOME COMPUTER CABINET

SPECIAL SHOW OFFER £79.95

incl. VAT & Delivery

Especially designed for your home computer system, whilst also accommodating your video recorder.

Our cabinet has been custom designed after intensive consultation with P.C. users to provide maximum comfort and convenience during those long hours spent slaving over a hot micro.

The cabinet includes many features not previously available, and as well as combining the very best aspects of modern furniture design, it provides an ergonomic and practical layout for all the major components of your system.

In fact, we are proud to claim that your cabinet will look perfectly at home in your lounge, dining room, or even bedroom.

JUST CHECK THESE STANDARD FEATURES

1. Smooth sliding shelf locks in position just where you require it — and neatly glides away after use.
2. The computer shelf has been designed to allow adequate 'Knee room' for you to sit comfortably, and will avoid 'programmers backache'.
3. Adequate room to position tape recorder, printer, disc-drives, etc. alongside computer for ease of use.
4. All cables neatly and safely out of sight, while allowing all units to be permanently connected if desired.
5. Lots of storage space for cassettes, cartridges, books, listing paper, joysticks, etc.
6. With shelves and doors closed, instantly becomes an elegant piece of furniture.
7. The lower shelf accommodates all makes of video recorders currently available.
8. Smart teak effect finish.
9. Supplied as a flat-pack. Very simple to assemble, using just a screwdriver. Full instructions supplied.

TERMS OF OFFER UK Mainland Customers only. Please allow up to 28 days for delivery. Cash with order or charge to one of the credit card accounts specified. Money back guarantee if not satisfied provided the goods are returned undamaged within 72 hrs of the customer taking receipt.

- -

ORDER FORM

Please send me one of your new Home Computer Cabinets as advertised. I enclose my cheque for £79.95 or please debit my

Access/Barclaycard No .... Name (Block letters) .... Signed ....

Address ....

....

....

MARCOL CABINETS, *8,Bugle Street, Southampton, SO1 OAJ.Tel(0703) 34974*

Save selectively
VIC-20

Owners of the VIC 20 micro are now able to save selective memory blocks on to tape using the steps below. The SAVE command only saves programs.

1 POKE locations 193 and 194 with the start address of the memory block.
2 POKE locations 174 and 175 with the end address of the memory block.
3 POKE locations 186 with the device number (1 for cassette, 8 for disk etc.) and location 185 with 3.
4. POKE location 147 with 0 for load and 1 for verify.

To perform save simply SYS 63109 and to perform load simply SYS 62795 (this routine doesn't inform you when it has found something).

The main uses of saving selective memory blocks are for performing screen text dumps onto tape and also to perform a character generator dump onto tape (hi-res picture saving). Now there is no need to load characters from data statements.

```
1 REM SCREEN DUMP PROG
   DEMO
2 REM INSERT TEXT TO BE
   SAVED BETWEEN LINES
   20-100
10 PRINT CHR$(147)CHR$(5):
   POKE 36879,8
20 PRINT "TEXT TO BE SAV-
   ED"
100 GOSUB 1000
110 PRINT:PRINT "WANT
   TO LOAD SCREEN?"
120 GET A$:IF A$ = "N"
   THEN END
130 IF NOT A$ = "Y" THEN
   120
140 GOSUB 2000
150 GOTO 150:REM FREEZE
999 REM SAVE SCREEN
   ROUTINE
1000 GOSUB 3000
1010 IF PEEK (37148)=254
   GOTO1010
1020 SYS 63109 : RETURN
1999 REM LOAD SCREEN
   ROUTINE
2000 PRINT CHR$(147) :
   GOSUB 3000
2010 SYS 62795 : RETURN
2999 REM SET UP
3000 POKE 193,0 : POKE 194,
   PEEK(648)
3010 POKE 174,0 : POKE 175,
   PEEK(648)+2
3020 POKE 186,1 : POKE 185,3
3030 POKE 147,0 : RETURN
```

Line 110 waits for the user to press play and record.

The routines don't display any messages such as saving etc.

When run press play and record.

David Redmonds

Got a bright idea for using your micro? This is the page where you can share your brainwave with other computer enthusiasts. Send your hints, warnings, discoveries and suggestions to Micro Tips, Home Computing Weekly, 145 Charing Cross Road, London WC2H0EE

Find that location
VIC-20 plus 3K

When working out user defined graphics etc, it is always a problem to find out the exact memory location to POKE the new values to. This line of program, when used with DATA statements solves this very quickly.

```
LN FOR CH = 0 to CN:READ
   C$:            C      =
   (ASC(C$)-64)*8 =
   7168: FOR CS = 0 TO 7:
   READ CQ: POKE C+CS,
   CQ: NEXT CS,CH
```

where LN = line number, and CN the number of characters to define.

A matching DATA line would be:—

```
LN DATA "X",123,234,0,34,
   62,1,3,0
```

David Shepherdson

Make an introduction
Any micro

Before you load data into your computer do you introduce the program via the TV speaker? With the tape recorder linked through to the TV, you don't have to be an expert to realise that this is possible.

For the interest of beginners like myself, here is how I go abut the operation with my TI-99/4A.

Start when you are ready to SAVE your program on to tape. Do not connect computer cable to recorder. Rewind tape to 000 or selected starting number. Record intro in normal manner.

Example: "HCW June 7, '83 program. Subject: Game. Title: Last Stand by Vince Apps. The aliens have invaded the earth and you are the last survivor. In your tank you strive to reach alien headquarters and destroy it before you are wiped out. You can do this by hiding behind trees as you advance... Typed in 27 June...stop recording and advance meter reading by 4 numbers NOW."

You have finished voice recording. Disconnect mike (if not built-in), connect computer cable. Next start SAVE routine, remembering that you do not need to rewind, but advance four numbers instead.

With your program on cassette, the play procedure is straight-forward. attach computer cable. Start from your beginning number, listen to the recorded message and press the recorder STOP button immediately as instructed. **Do not press enter.** Advance the four numbers and proceed in normal manner, that is, press enter but do not rewind.

You may find this method a convenient way of storing information. You do not have to listen to the introduction every time but it is there when needed.

To me it seems quicker and more personal than typing in a screened introduction. The cassette file card would read (say) 1-12 Intro, 16-26 "Last Stand".

Joe Berry

Fun with colour
TI-99/4A

This short program for the TI-99/4A shows off the colours in a bright display.

```
10 CALL CLEAR
20 CALL SCREEN (15)
30 X=3
40 FOR T=40 TO 144 STEP 8
50 CALL CHAR (T,"FFFFFFF
   FFFFFFFFF")
60 CALL VCHAR(1,X,T,48)
70 X=X+2
80 NEXT T
90 FOR T=2 TO 15
100 CALL COLOR (T,T,T)
110 NEXT T
120 G=1
130 FOR T=15 TO 2 STEP -1
140 CALL COLOR (T,G,1)
150 G=G+1
160 NEXT T
170 GOTO 90
```

Neil Sherwood

Protect your screen 48K
Oric 1

Owners of the 48K ORIC who wish to protect part of the screen from scrolling can alter the value stored at address #26F. The value stored determines the number of lines to be used for normal scrolling printing etc.

Changing the value takes just one simple line:—

```
DOKE #26D, #BB58:POKE
#26F,x:CLS
```

The variable x being the value to be stored.

This line could obviously be incorporated in a program if necessary

Colin Falles

Practical POKEs VIC-20

On the VIC-20 there are lots of POKEs to do weird and wonderful things, but for some reason they are not listed in the user manual. So here I have made a list of some of them. I hope they prove useful to you...

Poke 808,127 disables the RUN/Stop key (any memory VIC)
Poke 808,112 re-enables the RUN/Stop key.
Poke 36864,(0 to 128) moves the screen horizontally.
Poke 36865,(38 onwards) = Moves the screen vertically.
Poke 36866,(1 onwards) = Sets the number of chars on a line.
Poke 36867,(1 onwards) or 128 = Sets the number of lines.
Poke 199,1 = Turns the reverse field on.
Poke 199,0 = Turns the reverse field off.
Poke 204,0 = Flashes the cursor in a GET statement.
Poke 211,(0 to 22) = Sets the cursor column position.
Poke 214,(0 to 22) = Sets the cursor row position.
Poke 649,0 = Disables the keyboard.
Poke 649,10 = Re-enables the keyboard.
Poke 650,255 = Makes every key repeat.
Poke 650,0 = Sets repeat functions to normal.

An interesting effect is obtained by entering:

Poke 36879,8
CTRL 2
Poke 788,223

Then move the cursor around with the cursor keys.

Alan Blackham ■

Spectrum selection star-rated

New tapes for the Spectrum go before our jury. Here are their verdicts

The Train Game £5.95

Microsphere Computer Services, 72 Rosebery Rd, London N10 2LA

The drawing on the front of the inlay card is reminiscent of a bygone age. An age when wide eyed youngsters gazed in awesome wonder at those panting, gleaming monsters, the steam trains. When those same youngsters, and oldsters, could recite every detail about most trains in existence.

Over decades, this same enthusiasm has been carried into thousands of homes in the form of model railway layouts. I am not saying that you need to be an enthusiast to play this game, but if you are not then I am sure that your outlook on railways will change after playing.

There are two track layouts on the tape, which loads first time, and after loading the track of your choice you have to choose your skill level. These range from one to seven with the first six having five sub levels, and the seventh having nine sub levels. The idea of the game is to direct the train(s) to stations by means of switching the points, each set of points identified by a letter. At the stations you score points which vary from level to level, by picking up passengers.

Fun, fun, fun to play, with just two small niggles. One, I found the letters identifying the points difficult to see, and two, all the instructions are on the inlay card, so don't lose it. **B.B.**

instructions	80%
playability	100%
graphics	75%
value for money	100%

★ ★ ★ ★ ★

Element Serpent £4.50

Cloud 9 Software, Tavistock PL19 9EA

Having had a little difficulty, when first using this program, in seeing the snake on the screen I was very pleased when at last it showed up.

The program is designed to teach you the elements. This is done by directing a serpent around the screen using the cursor keys. In the bottom part of the screen you are given an element, the rest of the screen is covered in symbols on which the snake feeds.

Pressing any key will start the snake moving, rather fast I felt. However, you must now direct it to the correct symbols. You don't get any points for eating part of it, so you must now aim quickly for the next part not hitting the side of the screen or you die. You also kill the snake if you eat the wrong element.

Should you choose the wrong symbol the correct answer will appear. Should you kill the snake you have to go through a tune, being asked if you want instructions and choosing the level of skill again, which can be a bit tedious.

There are three levels to choose from, level one being elements that I am sure most of us have heard of, and level three more complex.

C.McI.

instructions	90%
ease of use	60%
display	75%
value for money	65%

★ ★ ★

Stomping Stan 48K £4.95

Britannia Software, 116 Woodville Road, Cardiff CF2 4EE

Stomping Stan is an impatient individual who has a mission in life. He has to collect keys, with your help of course, from various locations. Apart from the usual maze-type hazards there are creatures to contend with which are definitely anti-Stan. Because Stan is an egg, heavily disguised, the fiercest creatures are the egg stompers.

Now, if all this sounds familiar it should, because this is a variation of a well-worn theme. The only things to change are the names of the principal characters, the objects to be collected, and the hazards.

So, given the same basic plot, what makes one game more interesting than another? The answer really lies in the skill of the programmer together with the graphics used.

Although this programmer has produced a very smooth action game, the characters are really nothing new, neither are there any new 'twists'. Stomping Stan, by the way, appears to be a very close relation to a ubiquitous character called Horace. No problems in loading the program, and all the instructions are on screen.

Those who have never played this type of game will enjoy this version.

B.B.

instructions	100%
playability	75%
graphics	80%
value for money	70%

★ ★ ★

Bedlam £4.95

AWA Software, 50 Dundonald Road, Didsbury, Manchester M20 0RU

To get an idea of what any game is about I read, when possible, the description on the inlay card. All too often what appears on the screen doesn't match up with the written description.

This is because on the one hand we have the influence of the author's imagination, and on the other the cold, uncompromising screen display. When the players' imagination and enthusiams match those of the programmer then you can be sure that the player will enjoy the game, whatever it is. Any imbalance of either quality and you have disappointment.

My first disappointment was in the description "arcade game". It didn't resemble any arcade game that I have ever seen. As for "synthesised sound effects" that is stating the obvious.

That said, there are three levels of skill, where each level is slightly faster than the other. Killing off the baddies takes you through to other levels where there are even more baddies, some which fire back at you. For some reason "you" resemble a large fly. Because I didn't recognise "me" I didn't move, and lo and behold, all the baddies obligingly marched down to be shot.

B.B.

instructions	90%
playability	60%
graphics	85%
value for money	50%

★ ★

Invincible Island 48K £6.50

Richard Shepherd Software, Freepost, Maidenhead, Berks SL6 5BY

Your task is to find the seven parchments of Xaro, which will lead you to the treasure, hidden somewhere on Invincible Island.

Instructions are typed in using ordinary words, although the vocabulary is limited. Some of the commands are given in the instructions, which makes getting started easier.

There is a graphic representation of each location in the top third of the screen. This is drawn very quickly and complements the written description well. The lower part of the screen contains the description of the location, the commands you have typed in and the computer's replies which scroll up without affecting the graphics.

There are a considerable number of locations, drawing a map makes retracing your steps easier. Thankfully, there is a facility to record the program in mid-game. There were no problems with loading — apart from the time it took.

There are a number of problems to solve on your way to finding the parchments. Surprisingly, no hints are given within the game itself, although some clues are given in an accompanying program which must be loaded separately. **S.E.**

instructions	60%
playability	70%
graphics	70%
value for money	70%

★ ★ ★ ★

Finding faults with your Dragon

Hints on conversion

The program is written in Dragon Microsoft basic so it is a fairly easy matter to convert.

CLSC clear screen to blue
SCREEN 0,1 gives orange background to text screen
SOUND 200,1 short beep
EXEC 41194 is a ROM call to wait for a key press
PRINT @ 0 is the top left of the screen, 511 is bottom right

Fixing your car can be less of a drag with the Dragon. Put down your manual and try typing in Alan Gray's car repair program instead

Has your old faithful car let you down again? If so, get your fingers on to the keys and get typing.

Variables

C$ screen colour set inlising to blue
F$ & G$ data strings
I$ input
I val of I$

My program will give you nine common areas of trouble and what to do about them

Care should be taken in entering lines 280-600 — the punctuation is crucial as this sets the data format within the program.

How it works

20 save to tape
30-110 initialise and print headlines
120-230 menu
240-270 select from menu
280-620 selection of data strings to form table
630-1090 data strings
1130-1150 check for return or new data
1160 pause to read data

```
10 GOTO40
20 MOTORON:SOUND120,20:CSAVE"CARDOC":STOP
30 REM CARDOC A.GRAY 1983
40 C=3:CLSC
50 DIMF$(26),G$(26)
60 PRINTTAB(10)"CAR DOCTOR"
70 PRINTTAB(10)"*** ******"
80 PRINT"THIS PROGRAM WILL HELP TO SOLVE YOUR CAR
BREAKDOWN
90 PRINT"FOLLOW THE CHECK LIST AND
100 PRINT"ELIMINATE EACH FAULT IN TURN":SCREEN0,1
110 GOSUB630
120 CLSC
130 PRINTTAB(10)"CAR DOCTOR"
140 PRINT"FAULT";TAB(10)"*** ******";TAB(28)"SELEC
T"
150 PRINT"ENGINE TURNS BUT WILL NOT    1    START"
160 PRINT"ENGINE STOPS AND WILL NOT    2    START,
170 PRINT"ENGINE MISFIRES AND RUNS          ROUGH"TA
B(28)"3"
180 PRINT"GENERAL LACK OF POWER AND/        OR POOR
COMPRESSION"TAB(28)"4"
190 PRINT"EXCESSIVE OIL CONSUMPTION";TAB(28);"5"
200 PRINT"ENGINE WILL NOT TURN OVER";TAB(28);"6"
210 PRINT"ENGINE OVERHEATS"TAB(28);"7"
220 PRINT"LOSS OF COOLANT";TAB(28);"8"
230 PRINT"EXCESSIVE FUEL CONSUMPTION";TAB(28);"9":
SCREEN0,1
```

▶

DRAGON PROGRAM

```
240 I$=INKEY$:IF I$=""THEN240
250 SOUND200,1:I=ASC(I$)-48
260 IF I(1 OR I) 9 THEN 120
270 CLSC:ON I GOTO280,330,360,410,460,490,520,550,
580
280 PRINT"1 ";F$(1),"2 ";F$(2),,"3 ";F$(3),"4 ";F$
(4),,"5 ";F$(5),"6 ";F$(6),"7 ";F$(7),"8 ";F$(9)
290 GOSUB1160
300 PRINT"1 ";F$(10),"2 ";F$(11),"3 ";F$(12),,"4 "
;F$(13),"5 ";G$(5)
310 GOSUB1160
320 GOSUB1130
330 PRINT"1 ";F$(1),"2 ";F$(15),"3 ";F$(8),"4 ";F$
(16);"5 ";F$(6),"6 ";F$(3),"7 ";F$(2),,"8 ";F$(1)
340 GOSUB1160
350 GOSUB1130
360 PRINT"1 ";F$(6),"2 ";F$(2),,"3 ";F$(4),"4 ";F
$(19),,"5 ";G$(3),,"6 ";F$(3),"7 ";F$(22)
370 GOSUB1160
380 PRINT"1 ";F$(21),"2 ";F$(6),"3 ";F$(17),"4 ";F
$(23),,"5 ";F$(24),"6 ";F$(25),"7 ";F$(26)
390 GOSUB1160
400 GOSUB1130
410 PRINT"1 ";F$(25),"2 ";G$(4),,"3 ";F$(26),"4 ";
G$(1),,"5 ";G$(2),"6 ";F$(21),"7 ";F$([illegible]
420 GOSUB1160
430 PRINT"1 ";F$(17),"2 ";G$(3),,"3 ";F$(24),"4 ";
F$(20),"5 ";F$(10),"6 ";G$(15)
```

```
440 GOSUB1160
450 GOSUB1130
460 PRINT"1 ";G$(4),,"2 ";F$(26),"3 ";G$(6),"4 ";G
$(7),"5 ";G$(2)
470 GOSUB1160
480 GOSUB1130
490 PRINT"1 ";F$(18),"2 ";G$(9),,"3 ";G$(8)
500 GOSUB1160
510 GOSUB1130
520 PRINT"1 "G$(10),"2 ";G$(11),"3 ";G$(12),,"4 ";
G$(13),"5 ";F$(17),"6 ";F$(21),"7 ";G$(14),,"8 ";G
$(1),,"9 ";G$(15)
530 GOSUB1160
540 GOSUB1130
550 PRINT"1 ";G$(1),,"2 ";G$(16),,"3 ";G$(17),"4 "
;G$(18)
560 GOSUB1160
570 GOSUB1130
580 PRINT"1 ";G$(19),"2 ";F$(11),"3 ";F$(12),,"4 "
;F$(13),"5 ";G$(6),"6 ";F$(17),"7 ";G$(3),,"8 ";F$
(23)
590 GOSUB1160
600 PRINT"1 ";G$(20),"2 ";G$(21),"3 ";F$(3)
610 GOSUB1160
620 GOSUB1130
630 F$(1)="IGNITON SYSTEM WET OR DAMP"
640 F$(2)="HT LEADS BROKEN,LOOSE OR       SHORTED"
650 F$(3)="DIRTY,PITTED OR WRONGLY        ADJUSTED
CB POINTS"
660 F$(4)="LT LEADS BROKEN,LOOSE OR       SHORTED"
670 F$(5)="FAULTY IGNITION SWITCH"
680 F$(6)="FAULTY CONDENSER OR COIL"
690 F$(7)="CB POINTS SPRING BROKEN OR     POINTS 'D
OWN'TO EARTH"
700 F$(8)="FUEL TANK EMPTY''"
710 F$(9)="CARB JETS OR FUEL PUMP BLOCKED"
720 F$(10)="FAULTY FUEL PUMP"
730 F$(11)="TOO MUCH USE OF CHOKE
740 F$(12)="FLOAT LEVEL WRONGLY SET OR     DAMAGED
FLOAT"
750 F$(13)="LEAKING NEEDLE VALVE"
760 F$(14)="WATER OR DIRT IN FUEL SYSTEM"
770 F$(15)="FUEL CAP BREATHER BLOCKED"
780 F$(16)="BROKEN OR LOOSE LT LEADS       USUALLY
GIVES INTERMITTANT FAULT"
790 F$(17)="MIXTURE WRONGLY SET"
800 F$(18)="BATTERY LEAD,EARTH STRAP OR    ENGINE L
EAD LOOSE"
810 F$(19)="LT LEADS LOOSE ON COIL OR      DISTRIBU
TOR"
820 F$(20)="FUEL FILTER BLOCKED"
830 F$(21)="IGNITION TIMING WRONGLY SET"
840 F$(22)="CRACKED DISTRIBUTOR CAP"
850 F$(23)="AIR LEAKS. IE MANIFOLD OR CARBBASE"
860 F$(24)="BADLY ADJUSTED VALVES"
870 F$(25)="STICKING OR BURNT OUT VALVES"
```

```
880 F$(26)="WORN PISTON RINGS,VALVE        GUIDES O
R WEAK VALVE SPRINGS"
890 G$(1)="LEAKING HEAD GASKET(USUALLY    EASILY HE
ARD)"
900 G$(2)="WORN OR SCORED BORES"
910 G$(3)="DIRTY OR WRONGLY GAPPED        SPARKING
PLUGS"
920 G$(4)="WORN VALVE GUIDES OR STEM      SEALS"
930 G$(5)="LT LEADS CONNECTED THE WRONG   WAY AROUN
D"
940 G$(6)="WORN PISTON RINGS"
950 G$(7)="GENERAL OIL LEAKS"
960 G$(8)="FLAT OR FAULTY BATTERY"
970 G$(9)="FAULTY STARTER MOTOR,SWITCH ORSOLENOID"
980 G$(10)="WATER LEVEL LOW"
990 G$(11)="LOOSE FAN BELT"
1000 G$(12)="RADIATOR BLOCKED OR HOSES     COLLAPS
ED"
```

```
1010 G$(13)="THERMOSTAT STUCK CLOSED"
1020 G$(14)="OIL LEVAL LOW"
1030 G$(15)="EXHAUST BLOCKED"
1040 G$(16)="RADIATOR LEAKING OR LOOSE     HOSES"
1050 G$(17)="THERMOSTAT GASKET LEAKING"
1060 G$(18)="CYLINDER HEAD OR BLOCK        CRACKED
"
1070 G$(19)="AIR FILTER BLOCKED"
1080 G$(20)="TYRES UNDER INFLATED"
1090 G$(21)="BRAKES DRAGGING"
1100 GOSUB1160
1110 RETURN
1120 GOTO1120
1130 CLSC:PRINT@257,"HAVE YOU SOLVED THE PROBLEM ?
";:SCREEN0,1
1140 I$=INKEY$:IFI$=""THEN1140:SOUND200,1
1150 SOUND200,1:IF I$="Y" THEN 120 ELSE GOTO 270
1160 PRINT@451-32,"PRESS ANY KEY TO CONTINUE";:SCR
EEN0,1:EXEC41194:CLSC:SOUND 200,1:RETURN
```

YEP FOLKS — IT'S HERE

AVAILABLE NOW

Spectrum 48K
Dragon
Com 64

CALIFORNIA

GOLD RUSH

HOWDE DO PARDNERS
This here's Prospector Jake, I sure am havin' one helluva time tryin' to peg ma claim with those damned Injuns a hootin' an a hollerin' all over this territory. Ma job gets harder as I move from one Gold Field to another. I know, that is me an' ma stubborn hornery ol' Mule here know of 24 rich an' I mean rich seams of pure Gold. All it needs to make this here ol' critter happy is that you help me peg every doggone last one of them claims.

Can YOU help Jake become rich, help him peg his claim, dodge the arrows, avoid the tomahawks, and plant the Dynamite in just the right place? . . . YOU CAN!!!

YIPPEE . . . Git yer Picks an' Shovels and join the CALIFORNIA GOLD RUSH . . . NOW

Amazing Arcade Action . . . Stunning Sound and Graphics
Available NOW for Commodore 64, Spectrum 48, and Dragon

£7.95 including P&P

SPECIAL OFFER ***SPECIAL OFFER*** ***SPECIAL OFFER***

Order CALIFORNIA GOLD RUSH before August 14 and get a 10-game Cassette of terrific games . . . **FREE**

COMING SOON

LEAPIN' LANCELOT: Medieval Machine Magic to enthral you
GALACTIC SURVIVAL PAK: Every Astro-Traveller *must* have this!

ANIK

We always need Dynamic Dealers and Imaginative Writers

Please rush me CGR for (m c)

TOTAL SUM INCLUDED £
Please make cheques and POs payable to ANIK MICROSYSTEMS
30 KINGSCROFT COURT
BELLINGE NORTHAMPTON

Name ..
Address........

FOR FIRST TIME USERS...

A new series of books which introduce newcomers to the most widely used micros in the marketplace.

The books assume absolutely no knowledge about computers and the reader is shown even the most fundamental operations such as "switching on" and "loading a program". The books lead the reader through simple programming and then onto graphics, with several programs which show how to achieve pictures and even animation The books contain a number of specially written programs which show the full potential of these machines.

"The text is liberally supported by all manner of useful diagrams and illustrations (including many black and white photographs of the screen). The overall presentation is excellent. The printing, setting out and listings are clear and positively invite the reader to have a go." EDUCATIONAL COMPUTING

£5.95
(incl postage)

LEARNING TO USE THE
LYNX
COMPUTER

ORDER FORM
READ-OUT BOOKS AND SOFTWARE
8 Forge Court, Reading Road.
Yateley, Camberley, Surrey GU17 7RX

24 hour answering service Tel (0252) 873373

Name________________

Address________________

____

NOW AVAILABLE

Please send me...... copy/ies at £5.95 each
incl. postage & packing. (Allow 14 days for delivery.)

☐ Learning to Use the PET Computer
☐ Learning to Use the BBC Microcomputer
☐ Learning to Use the ZX Spectrum
☐ Learning to Use the Apple II/IIe
☐ Learning to Use the Commodore 64
☐ Learning to Use the VIC-20 Computer
☐ Learning to Use the ZX81 Computer
☐ Learning to Use the Dragon 32
☐ Learning to Use the TI99/4a
☐ Learning to Use the Oric 1
☐ Learning to Use the Lynx

Make cheques payable to **Newtech Publishing Ltd**

I enclose my cheque for £________________
Please debit my Access ☐ ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Signed ________ Date

READ-OUT

HCW10

ABERSOFT
48k Spectrum
ABERSOFT
The Wizard's Warriors

THE WIZARD'S WARRIORS: A fast moving game that matches developments in your skill as a player by becoming increasingly more devious. By offering to you the full range of options you can choose how to control your warrior through the maze. A full implementation of this program enables such features as a continuous series of sound effects, arcade quality graphics, double-point scoring, and--for the very artful --bonus lives. — Spectrum £4.95

FORTH A full implementation. Ideal for writing fast moving arcade type games. Allows the full colour and sound facilities of the Spectrum to be used Future Microdrive enhancements will be made available. — Spectrum 14.95

ADVENTURE ONE: Features a save game routine as the game can take months to complete
'a remarkably good version. ...well worth the money' *Sinclair User* — ZX81 £5.95

MAZEMAN: A fast action m/c game that reproduces the spirit of the original.
'..is very accurate and fast.' *Which Micro?* — Spectrum £4.95, ZX81 £4.45

CHESS 1.4: Ten levels of play with this m/c program Good graphic screen display
'In a class of it's own.' ...*Your Computer* — ZX81 £5.95

INVADERS: Very fast m/c action. Includes mystery ship and increasingly difficult screens — ZX81 £4.45

7 MAES AFALLEN, BOW ST., DYFED, SY24 5BA
24hr Ansaphone 0970 828851

Are they worth the money?

Cartridge games reviewed by Mike Roberts. Most also have a joystick option

Parsec
£29.95

This is the most beautiful arcade game for the TI that I have ever seen.

The use of the speech synthesiser from within the program is excellent. It simulates an onboard combat computer warning you of impending attack and other warnings such as running out of fuel and it (or rather she as it is a female voice) will give encouraging remarks as to your progress, a pleasant change from some sarcastic computer games.

The concept of the game is similar to the scramble/defender type, with the space ship travelling horizontally across a moving planetary surface strewn with objects. If you hit this you lose one of your initial five lives. New ships are granted at regular intervals.

There are eight different types of nasties out to get you and they come in waves, so you have to destroy all of the first type before you go onto the next. If this is not enough for you, you are in constant danger of your laser overheating and your ship blowing up, running out of fuel and having to fly down a tunnel to get some more, and flying through an asteroid belt.

There are 16 different levels to get through, and although I have been playing this game for a week now I have only got to level 4, so it is very challenging.

instructions	100%
playability	100%
graphics	100%
value for money	100%

★★★★★

Alpiner
£24.95

A very interesting game with a concept that I haven't seen before. The game needs explaining in some detail as it is different to anything else on the market.

The idea is to climb up six of the world's biggest mountains while avoiding falling rocks, mountain lions, bears, skunks, rotten eggs, bats, trees, etc. The speech synthesiser option generates male and female voices which will warn you of impending doom and give encouraging remarks.

There is an option for two players and seven differing languages are available, although the speech synthesiser still speaks in English. Points are awarded for how high you get, plus various other bonus points.

The graphics are excellent, and produce a good picture of a cliff face with all the animals and other dangers well represented, and a very realistic climber that moves properly as he climbs up the mountain.

The instruction book is up to TI's usual standard and runs to 18 pages, and is quite comprehensive.

Overall this game would be good for someone who wants something that is a bit different to the normal run of the mill zap-the klingons game.

instructions	100%
playability	85%
graphics	100%
value for money	60%

★★★★

Car Wars
£19.95

The object is to race around a five-lane race track. Of course there is a computer controlled car racing round in the opposite direction to you trying its very best to smash you up.

The lanes of the race track have four points where you can change up to two lanes. The lanes are filled with dots, which you have to run over, Pac-man fashion, to obtain points. After a user defined number of dots have been cleared the car will speed up. The other difficulty setting is a choice of three speeds, creepin', fast, and flyin'.

A bonus is awarded from 200 to 1000 points depending on skill level.

The instructions are good, except that they don't mention that the arrow keys can be used in place of a joystick. The graphics are quite good and the game is very fast.

The only real gripe against this game is that it is very simple and, after a while, boring. It doesn't warrant the price or to be put in a cartridge. When Commodore has a simple but amusing game like Blitz they put it on tape and don't charge an extortionate amount for it.

But aside from that this is a well put together game with good documentation and instructions.

instructions	100%
playability	60%
graphics	90%
value for money	40%

★★★

TI Invaders
£19.95

Space invaders is getting a bit long in the tooth and TI Invaders is no exception.

This program is a good representation of the game that took the world by storm so many years ago. There are some differences — aren't there always? — and in this case they are for the better. There are two skill levels, called "merely aggressive" and "downright nasty" which is a nice touch. The instructions are very clear and concise except for the point that the keyboard arrow keys can be used instead of a joystick.

After each screen of invaders you can shoot it out with a mystery ship on its own.

A new laser base is awarded at 3,000 points and at 10,000 points one of your demolished forts is repaired.

The graphics are good. Although they look like invaders they don't look like the arcade invaders. The laser bases are good and when one is destroyed it turns into a wreck and is lowered into an underground cavern and another will take its place.

When the invaders have ultimately won they will jump up and down with much glee.

This game is getting a bit obsolete and boring, but it's not TI's fault and this is a good game despite the limitations of the game concept.

instructions	80%
playability	40%
graphics	90%
value for money	30%

★★★

Video Chess
£34.95

This cartridge gives as much as could be reasonably expected from a computer chess program. Unfortunately, it is rather overpriced compared to other chess programs available for other computers.

The instructions first give an explanation of the game of chess itself and the notation used to describe your moves to the computer.

The manual then goes on to explain the various options available to the user.

These are all menu-driven. The first menu has six options: play game, which starts the play, selection of game type, which gives you three other menus — level of play, style of play, or colour; chess board, which enables two human players to play; set up a problem, this means you can set up the board in any position and to play the computer from there, play more than one game simultaneously, up to nine games can be played, and to load in a game from cassette tape.

When playing a game you can cancel the last move, resign, offer a draw to the computer, replay from start, change sides, rearrange the pieces, change the style of play, correct the last move, and save the current status on cassette tape.

Castleing, pawn promotion, and en passant are all supported.

instructions	100%
ease of use	85%
display	100%
value for money	60%

★★★

NOW AVAILABLE FROM W. H. SMITH, JOHN MENZIES AND BOOTS*

Rid the world of the Transylvanian Terror before he introduces you to the dark world of the living dead in...

Transylvanian Tower

A spectacular 3-D maze adventure for the 48K Spectrum only £6.50

"Enthralling and addictive"...Popular Computing Weekly

"Addictive"...Sinclair User

"Transylvanian Tower is an excellent game at a reasonable price"...Personal Computer News

Dealer enquiries welcome

* Selected computer branches only

Adventurous Programs always wanted. Please send sample — generous cash payments!

RICHARD SHEPHERD SOFTWARE

ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 6353

More haste, less speed

In the race for quicker processing, the Commodore 64 has a few tricks you can use. David Rees shows how to put them to use

In comparisons between the BBC micro and the Commodore 64, one of the BBC's main virtues is its speed advantage.

There are two reasons for this. The first is that the BBC's processor clock is running at twice the speed of the Commodore's clock. The processor speed determines the main running speed of the computer, and if the CPUs of two machines are similar, comparisons can be made. From this, it can be seen that the BBC has a big advantage.

The second reason is that the BBC's text mode, mode 7, takes up half the memory of the Commodore's screen, so scrolling is twice as fast.

In the face of this advantage, you'd not be blamed for thinking the situation was hopeless, but the Commodore does have a few tricks up its electronic sleeve.

An obvious point is to avoid scrolling or screen clearing, but much more can be done.

BASIC "crunching" is a simple, but effective method. When running a program, each line has to be read and translated, and this slows down your routines. So removing unnecessary sections can be rewarding.

Spaces can easily be removed, and replacing large numbers by variables (less to read) in repeating routines saves time.

Another way to crunch programs is to put several commands on one line, saving time needed to read the data before each line (eg. line number and position).

A final saving can be made by removing actual keywords and symbols. An obvious example is the LET keyword, but there are several less well known instances. Some of these are given in the program listing.

Another time saving tip lies in the fact that some BASIC commands take a shorter time to execute than others. For example, a FOR...NEXT loop can be up to 10 times faster than an equivalent IF...GOTO loop.

The slow commands to avoid are IF...THEN, COS, SIN, TAN and "to the power of". They can be replaced in some cases, such as using an array of SIN values.

The most useful improvement is to PRINT to the screen, instead of the POKE command more commonly used in games, as it can sometimes be twice as fast.

Delving one layer deeper into the computer, we reach the operating system, the routines which keep the computer in good order. This cannot be changed easily, but one feature can be manipulated.

The Commodore 64 has a routine used by an IRQ (interrupt request) which takes time away from your program to update data, such as incrementing TI and getting a pressed key.

This routine is jumped to every fraction of a second, and the delay time is determined by location 56322. The normal value of this register is 68, but by POKEing higher values, the delay time is lengthened, giving more time to your program.

```
8 REM* NORMAL PROGRAM *
9 REM* TAKES 21 SECS  *
10 N=0
20 N=N+1
30 PRINT"█";N
40 IF N<999 THEN GOTO 20
50 END
97 REM* FULLY SPEEDED *
98 REM*    PROGRAM    *
99 REM* TAKES 12 SECS *
100 POKE56334,PEEK(56334)AND254
110 POKE53265,PEEK(53265)AND239
140 X=999
150 FORN=0TOX:PRINT"█"N:NEXT
200 POKE56334,PEEK(56334)OR1
210 POKE53265,PEEK(53265)OR16
220 END
298 REM* BASIC SHORTENING *
299 REM*     EXAMPLES     *
300 LET A=1
301 A=1
310 PRINT"█";A
311 PRINT"█"A
320 IF A<>0 THEN GOTO 310
321 IF A THEN GOTO 310
330 IF A=1 THEN GOTO 310
331 IF A=1 THEN 310
```

The interrupt can actually be stopped, but this action is rather drastic. If you do wish to do this, the starting and stopping routines are, respectively:

```
POKE 56334, PEEK (56334) AND 254
POKE 56334, PEEK (56334) OR 1
```

However, please note that once this is done you will lose control of the computer as there will be no key input. I have solved this problem, but the method only works well within a program.

```
SYS 65508: GET A$
```

The final step into the computer involves using the chips themselves.

The video chip is a tremendously versatile tool, but it does have its shortcomings.

In the computer there is a path called an Address Bus. This is used to move bytes around to be processed and normally carries your program instructions. However, for sprites and the screen to be displayed, data must be transferred to the television.

Thus, every fraction of a second the Address Bus is taken over to transfer the 2,000 or more bytes, slowing down your program.

Some time can be saved by using the minimum number of sprites, but the main culprit is the screen. The screen can be blanked, but this is only really useful for non display programs with long, repetitive routines.

If you do have such a program, use the following routines to blank and enable the screen, respectively:

```
POKE 53265,PEEK(53265) AND 239
POKE 53265,PEEK(53265) OR 16
```

Using these tips wisely and taking time to study your program can lead to speed increases of 30 per cent, and in a few cases over 50 per cent so even if you only use a few suggestions, you can make a big difference to your programs' performance.

STATISTICAL LIBRARY

All tapes carry a DATAFILE program that enables the user to INPUT-EDIT-SAVE-READ data on tape.

TAPE I	: Descriptive Statistics	6.99
TAPE II	: Statistical Tests	14.95
TAPE III	: Probability Distribution	14.95
TAPE IV	: Multivariate Datafile . Cross-tabulations and correlation coefficients	14 95
TAPE V	: Step-Wise Multiple Regression and Analysis of Variance in Regression	19.95
TAPE VI	: Principal Components	19.95
TAPE VII	: Factor Analysis	19.95
TAPE VIII	: Time Series and Forecasting	19.95

Statistical Library	100.00
BBC-Model B (disk)	125.00
BBC-B and Spectrum-48K (8 tapes)	100.00
ZX-81 (7 tapes without Datafile)	70.00

Saga Software House

Scientific and Business Packages for
BBC-Model B, Spectrum-48K, ZX-81(16K)

133A High Street, Acton
LONDON W3 6LY

Free yourself from the Handbook

USE

MICROGUIDES

THE KEYPLATES TO MAKE IT EASY!

Microguide KEYPLATES fit exactly over your computer keys • Gives you an easy to read list of commands • Alphabetically arranged for immediate access • Placed exactly where you require it as part of your computer keyboard • The Keyplates, made of durable plastic, have space for function key notes • 'Clean-wipe' pen for function key identity is supplied •

MICROGUIDES

Special introductory offer!

Order now and you will receive a FREE copy of "Error messages [illegible]"

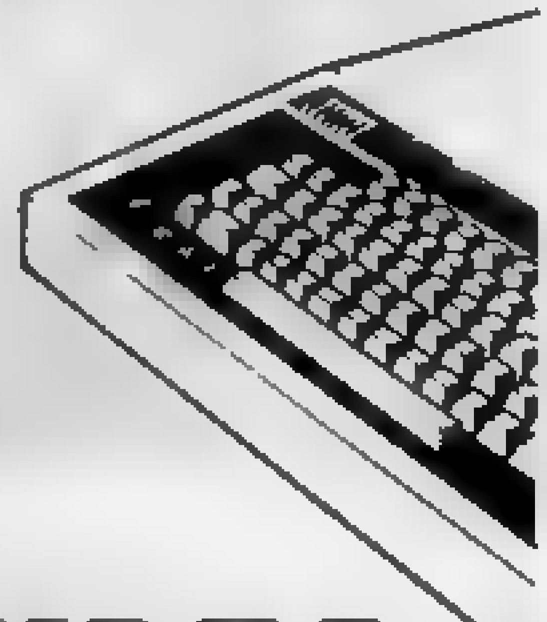
Keyplate prices

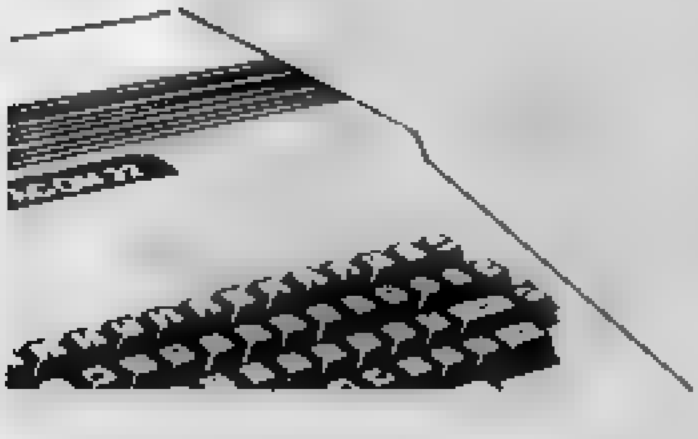
VIC 20 £8·95

[illegible]

[illegible]

[illegible]





CHEQUES OR POSTAL ORDERS WITH ORDERS TO

MICROGUIDES

St., James House, 105-113 THE BROADWAY, EALING, LONDON, W13 9BL

Ray guns at the ready . . . here come the Swarmers

Great graphics and sound make Swarm, by Kevin Boyd, a must to type into your VIC-20. It needs a Super Expander and joystick or, by making a few easy changes it will run with just 3K expansion and keyboard control

Waves of raiders from the planet Swarm are out to destroy your planet and you have been put in charge of three photon-powered ray guns to fight them off.

At first the raiders are in a group of five, but they increase in number after each wave is destroyed.

You score points when you shoot a swarm, depending on the wave you are on and how many there are.

As written, the game needs a VIC-20 with Super Expander and joystick. Here is how to change it for a VIC with just 3K expansion and no joystick.

The main commands used are at line 320 where the joystick is read and the values returned given to A. Lines 332-335 then act on these values.

Lines 330-335 should be replaced with.

```
320 GET K$
330 IF K$ = "Q" THEN Y
    Y - 22
332 IF K$ = CHR$(13) THEN
    1000
335 IF K$ = "Z" THEN Y
    Y + 22
```

And add

```
6 POKE 650,128
```

This gives repeat on all keys. So, with the above modifications, the controls are:

Q up
Z down
RETURN fire

How it works

15-34 character generator
35-130 character data
139-275 set up screen
280-390 main game routine
999-1080 laser fire routine
1099-2130 explosion routine
2499-3155 wave display etc
3499-4120 score routine, new game option
4999-5200 introduction, instructions

The other Super Expander command used is the SOUND command. This command has five parameters and each constant or variable is separated by a comma.

The first four parameters are the VIC's sound registers, 36874-36877, and the last parameter is the volume register (36878).

The program uses multi-coloured user-defined graphics which allow four colours on one character matrix rather than the usual two. Line 220 sets up the multi-coloured effects and, by POKEing the characters to the screen with colours higher than seven, one puts a character into multi-coloured mode.

For example, line 350 POKEs the ship on the screen and then POKEs the colour pink on top. Try changing line 220 to different numbers and you will get some good effects.

You'll find the following advice useful when you are typing in the program.

Lines 1 and 2 contain deletion characters (inverse Ts). This is achieved by first typing in the line until you reach the deletion characters. After the first quote mark (") place another. Now delete the second quote mark and insert six times.

Nothing should happen when you do this, but when you press the DELetion button six times six deletion characters will appear. Now type in the rest of the line as shown.

When LISTed, lines 1 and 2 will have lost their line numbers and REM statements, just leaving the remarks.

Lines 230 and 240 may also cause problems. Here is how to type them in.

```
230 " 5 spaces @A 3 spaces
  B@A 12 spaces BB 3
  spaces @A 13 spaces BB
  @A@AB@A@A 6 spaces
  @A 3 spaces B@A 9
  spaces "
```

For line 240, I will give the spaces only:

```
240 " 4 spaces 6 spaces 4
  spaces 2 spaces 4 spaces
  6 spaces "
```

If by any chance you manage to survive 95 attack waves the attack wave counter will go back to 1.

Main variables

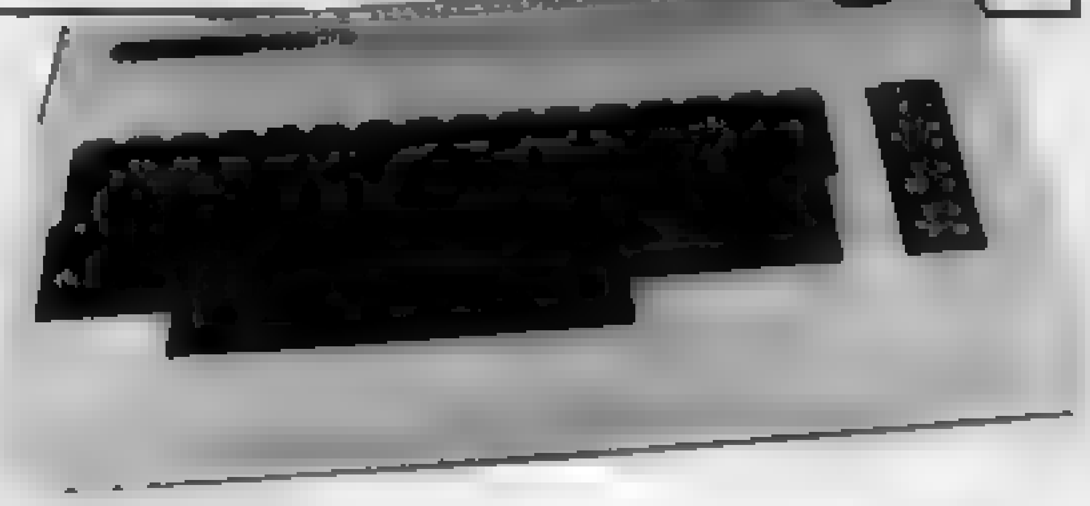
V position of spaceship
WV number of Swarmers in the wave
WC wave count — how many Swarmers have been destroyed in the current wave
ML number of spaceships left
P(Q) Swarmers position
L laser beam position
CR which of the three types of Swarmers are on the screen

```
1 REM[illegible]     S.W.A.R.M  BY        KEVIN BOYD &        ANGUS BORDIE
2 REM"[illegible]
3 GOSUB5000
4 POKE52,28:POKE56,28:POKE51,0:CLR:DIMP(99)
5 PRINT"[illegible]PLEASE WAIT FOR CHARS "
15 REM[illegible]       #CHAR GENERATOR#      [illegible]
20 FORI=0TO511
21 POKE7168+I,PEEK(32768+I)
22 NEXTI
30 FORI=0TO1000
31 READJ
32 IFJ=-1THENPRINT"J":GOTO140
33 POKE7168+I,J
34 NEXT
35 REM[illegible]       # C H R  D A T A #      [illegible]
37 DATA 1,1,6,6,26,26,106,106,64,64,144,144,164,164,169,169
40 DATA0,0,0,0,17,85,102,170,170,170,170,170,170,170,170
45 DATA255,243,57,156,156,60,252,255,      0,9,22,154,165,37,6,0
50 DATA0,192[illegible],234,234,0,0,0,0,0,0,0,170,192
55 DATA255,191,183,175,159,175,173,255,0,0,40,20,130,130,40,130
60 DATA255,142,172,140,156,172,143,255
61 DATA255,211,101,117,117,113,114,255,255,191,183,175,159,175,173,255
62 DATA 255,15,215,215,107,131,104,255,255,135,183,183,134,174,46,255
63 DATA255,119,39,87,219,251,249,255,3,123,75,91,75,123,3,255
64 DATA 255,00,85,00,117,116,255,255,255,71,119,103,119,71,255,255
65 DATA 255,142,174,142,174,170,255,255,255,110,170,170,170,110,255,255
66 DATA 255,34,170,98,170,162,255,255,255,143,191,159,191,139,255,255
67 DATA255,255,255,255,255,255,255,255
70 DATA05,35,131,131,131,131,35,5
71 DATA170,170,190,190,190,190,170,170
130 DATA -1
139 REM[illegible]       #SET UP SCREEN#      [illegible]
140 PRINT"J"
200 POKE 36869,255
201 V=7982:WV=5:ML=3:CR=9
220 POKE36879,121:POKE36878,10*16:POKE646,2+8
225 SOUND0,0,250,6:POKE36867,36
230 A$="[illegible]"
240 B$="[illegible]"
250 C$="[illegible]"
270 POKEV,5:POKEV+1,6:POKEV+2,7
275 D$="[illegible]"
280 REM[illegible]       # MAIN ROUTINE#      [illegible]
300 FORI=1TO57
305 PRINT"[illegible]SCORE"SC" WAVE"WV-4
306 POKE646,90
310 PRINT"[illegible]"MID$(A$,I,22)MID$(B$,I,22)MID$(C$,I,22)D$
312 POKE646,90
320 A=RJOY(0)
330 IFA=1ORA=5ORA=9THENV=V-22
332 IFA>127THEN1000
335 IFA=6ORA=2ORA=10THENV=V+22
337 IFV<7702THENV=V+22
340 POKEV,32:POKEV+1,32:POKEV+2,32
345 V=V+Y:Y=0
349 IFPEEK(V+1)<>32ORPEEK(V+2)<>32ORPEEK(V+3)<>32THEN3000
350 POKEV,5:POKEV+1,6:POKEV+2,7:POKEV+30720,10:POKEV+30721,10:POKEV+30722,10
355 IFMF=1THENRETURN
360 IFX=1THEN370
361 X=1:FORM=1TOWV:R=INT(RND(1)*12):P(M)=7722+22*R:NEXTM
370 FORQ=1TOWV
371 IFP(Q)<7965THEN378
372 N=INT(RND(1)*3):IFN=0THENP(Q)=P(Q)-2:POKEP(Q)+2,32
373 IFN=1THENP(Q)=P(Q)+42:POKEP(Q)-42,32
374 IFN=2THENP(Q)=P(Q)-46:POKEP(Q)+46,32
375 IFP(Q)<7724THENN=1:GOTO373
376 IFP(Q)>7988THENN=2:GOTO374
377 POKEP(Q),CR:POKE30720+P(Q),10
378 REM
379 MF=1:GOSUB320
380 NEXT:MF=0
390 NEXT:GOTO300
999 REM[illegible]       # LASER  FIRE #      [illegible]
1000 S=0:N=15
1010 FORL=V+3TOV+18:S=S+6:N=N-0.5
1020 POKEL,7:POKE30720+L,0
```

```
1030 SOUND0,0,0,120+S,N
1035 IFPEEK(L+1)=CRTHEN 2000
1040 NEXT
1050 SOUND0,0,0,250,6
1060 FORL=V+3TOV+21
1070 POKEL,32:NEXT
1080 GOTO335
1099 REM****************         * EXPLOSION *         ****************
2000 POKE36878,16:T=15.5:FORS=230TO200STEP-1:T=T-.5:SOUND200+T,120+T,0,0,T
2010 POKEL+1,170:POKEL+1,32:NEXT
2100 FORQ=1TOWV
2110 IFEF=0ANDPEEK(P(Q)-1)=7THENP(Q)=7681:EF=1
2120 NEXT:EF=0
2125 MC=MC+1:SC=SC+(10*WV*MC):IFMC=WVTHEN2500
2130 GOTO1050
2499 REM****************         WAVE DISPLAY         ****************
2500 FORL=V+3TOV+21
2501 POKEL,32:NEXTL
2503 FORJ=254TO128STEP-1:SOUNDJ,J,J,0,15:SOUND0,0,0,0,0:NEXTJ
2505 PRINT"TACK WAVE "WV-4"          COMPLETED"
2510 FORD=1TO900:NEXTD
2520 PRINT"
2525 FORC=38424TO38708STEP22:POKEC,10:POKEC+1,10:POKEC+2,0:NEXTC
2530 X=0:WV=WV+1:MC=0
2535 IFCR=9THENCR=23
2536 IFCR=25THENCR=0
2540 CR=CR+1:PRINT"J"
2546 IFWV>=99THENWV=5
2547 SOUND0,0,0,250,6
2550 GOTO300
3000 FORR=15TO0STEP-1
3001 POKEV,32:POKEV+1,32:POKEV+2,32
3002 IFV<7900THENV=V+22
3003 POKEV,42:POKEV+1,42:POKEV+2,42
3004 POKE646,R:FORM=1TO20:NEXTM
3005 POKEV,5:POKEV+1,6:POKEV+2,7
3010 SOUND0,0,0,200,R:POKE646,R:NEXT
3020 PRINT"MID$(A$,1,22)MID$(B$,1,22)MID$(C$,1,22)D$
3030 POKE646,0:FORM=1TO20:NEXTM,R
3100 ML=ML-1:IFML=0THEN3500
3110 PRINT"YOU HAVE "ML" MEN LEFT"
3120 FORD=1TO1000:NEXTD
3130 PRINT"HERE COMES WAVE "WV-4"  GET READY TO FIGHT"
3140 FORD=1TO3000:NEXTD:PRINT"J"
3141 FORQ=1TOX:POKEP(Q),32:NEXTQ
3150 FORC=38424TO38708STEP22:POKEC,10:POKEC+1,10:POKEC+2,10:NEXTC
3151 SOUND0,0,0,250,6
3152 V=7982:POKEV,5:POKEV+1,6:POKEV+2,7
3155 X=0:MC=0:EF=0:GOTO300
3499 REM****************         *END  ROUTINES         ****************
3500 FORT=0TO165STEP5:POKE36881,T
3501 SOUND150+RND(1)*100,94+T,254-T,200,15
3505 NEXTT:SOUND0,0,0,0,0
3509 POKE36867,46:POKE36879,25
3510 PRINT"ELL DONE YOU SCORED  "SC"  POINTS"
3511 PRINT" AND YOU GOT THROUGH      "WV-4"WAVE(S)"
3520 PRINT"DO YOU WANT ANOTHER GO"
3530 FORT=160TO30STEP-.5:POKE36881,T:NEXTT
3540 GETQ$:IFQ$=""THEN3540
3550 IFQ$="Y"THENCLR:GOTO140
3555 IFQ$="N"THEN 4000
3560 GOTO3540
4000 PRINT" BYE FOR NOW!"
4100 POKE36869,240
4120 END
4999 REM****************         *INTRODUCTION         ****************
5000 POKE36879,25:POKE36869,240
5010 PRINT"S W.A.R.M."
5020 PRINT"ASHING."
5022 PRINT"MONGERING."
5024 PRINT"MED."
5026 PRINT"IDER."
5028 PRINT"CH'NES."
5030 PRINT"ARE TRYING TO INVADE *   YOUR PLANET!"
5040 PRINT"PRESS A KEY TO CONT":POKE198,0:WAIT198,1
5050 PRINT"YOUR JOB IS TO STOP   THEM.YOU HAVE A SUPPLY OF  5   PHOTON POWERED
"
5055 PRINT"  GROUND DESTROYERS   WHICH FIRE DEADLY LOADWAVE WHICH IS THE ONLYTHI
NG ",
5060 PRINT"WICH CAN DESTROY THE SWARMERS."
5070 PRINT"THEY WILL COME IN WAVEFORMATION AND INCREASEIN NUMBER EACH TIME"
5080 PRINT" A WAVE IS DESTROYED."
5085 PRINT"PRESS A KEY TO CONT":POKE198,0:WAIT198,1
5090 PRINT"YOU CONTROL YOUR CRAFT WITH THE JOYSTICK."
5100 PRINT"GOOD LUCK YOU NEED IT "
5110 PRINT"PRESS A KEY TO START":POKE198,0:WAIT198,1
5200 RETURN

READY.
```

Hints on conversion

Because of the number of POKEs used, it would be quite difficult to convert to another computer except, perhaps, the Commodore 64. It would be best to take the idea and write it afresh.



ARCADE ACTION ORIC-1 ADVENTURES

DINKY KONG

For 48K £6.95

SUPER M/C ARCADE GAME

- Skill Levels, Full Colour, Platforms, Ladders, Fire-balls, Rolling Barrels, Umbrellas, Hearts, Hall of Fame, Sound Effects.

You wont see a better game for the Oric.

***Author — Adrian Sheppard.**

ORICADE

For [illegible]

- Assembler/ Disassembler/ Editor
- Handles full 6502 mnemonics. Features Save & Reload M/C Assembles & Disassembles at any address

You can't program seriously without Oricade.

***Author — Adrian Sheppard.**

MORIA

For 48K £6.95 inc

A challenging adventure set in the mines of Moria.

- Can you survive encounters with the monsters of Middle-Earth? Will the wizard help you? Are you fated to die beside the sealed doors? Or have you the power to open them? Unless you find Durins Ring you will never leave the mines alive!

JOGGER

For 48K £6.95 inc.

REAL M/ C ARCADE ACTION

- 4 Screens, Skill Levels, Full Colour, Road, Cars, Lorries, River, Crocs, Logs, Hall of Fame, Sound Effects.

Perspire your way up the screen.

***Author — Adrian Sheppard.**

GRAIL

For [illegible]

Exciting Graphic Adventure

Where in the Castle Perilous is the Holy Grail? Gather armour and weapons to fight monsters. Sell treasure to a trader in exchange for strength potions and wound ointment. Where will the warp take you to? This is a test of skill, luck, logic & intelligence.

*Now available from branches of Laskeys.

*Dealers enquiries welcome — excellent trade terms.

*Ask for Severn Software at your local computer store.

Please send me your .... program. For my Oric-1

I enclose cheque/ P.O. for £ ....

NAME

ADDRESS

Post Code ....

SEVERN SOFTWARE HCW30
5, School Crescent, Lydney, Glos. GL15 5TA.

Dink Kong available from selective branches of W.H. Smith.

SEVERN SOFTWARE

Watch him soar through the air

Gymnast, which runs on either Spectrum, is a short but clever program from Thomas Goodchild which shows how user defined characters can be put to good use

Suitable for either Spectrum model, this simple program (about 5½K) simulates a gymnast on a trampoline.

The object is to get the gymnast to the maximum height in the least number of jumps. Press J to jump. The number of jumps and height attained are displayed continuously.

The data for the user-defined characters is entered in hexadecimal to save programming time. The 12 UDG characters are positively identified at the beginning of each data line (6010-6014).

Those who prefer to isolate the data for each character may do so by inserting the plus sign as shown in line 6010. This is not essential but sometimes helps.

The program may be SAVEd, ready to play on re-LOADing, by entering the instruction SAVE "tramp" LINE 15.

The contents of the strings are shown at the beginning of each DATA line.

How it works

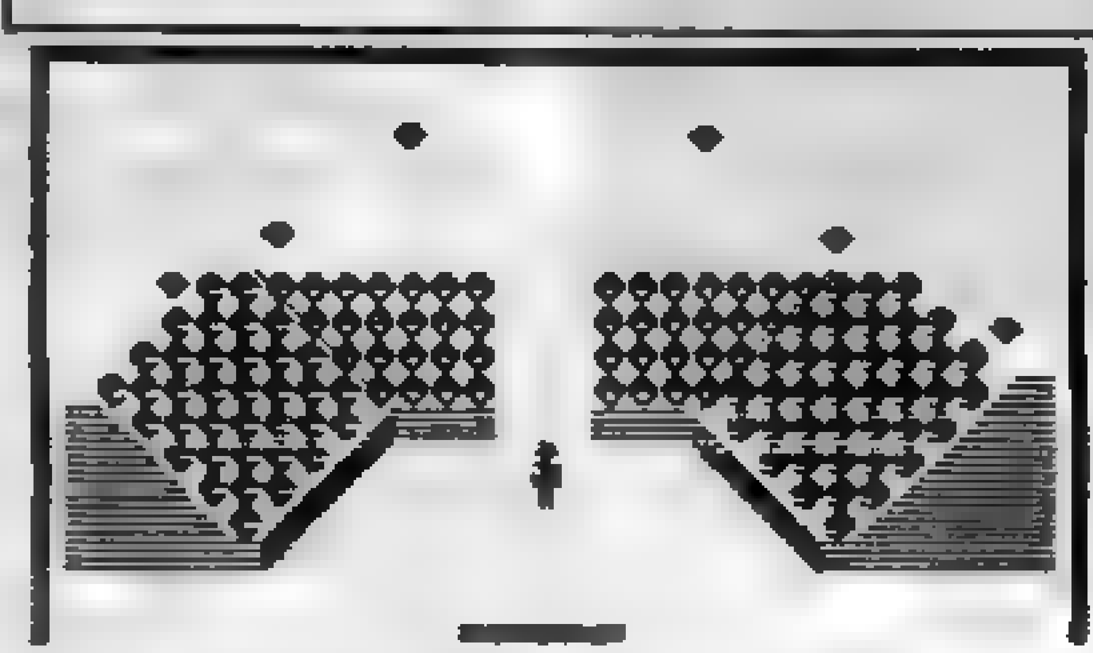
- 10-20 introduction, set up UDGs and starting values
- 30-100 screen display, string allocation
- 110-1012 jump and control of jump routine
- 1015-1060 try again?
- 2000-2050 success display — with jumps, height and applause etc
- 6000-6014 DATA for UDG characters
- 6020-6090 hexadecimal DATA loader

```
   0>PRINT AT 1,11;"TRAMPOLINE";
AT 8,1;"by T.A.GOODCHILD    Augu
st 1983";AT 21,4,"Press any key
to continue.": PAUSE 0: CLS
  10 PRINT AT 1,11;"TRAMPOLINE";
AT 4,4;"The object of the game i
s to";'';" get the Gymnast to th
e maximum ",'',"  height of 19 un
its.";AT 21,4;"Press any key to
continue."
  11 PRINT AT 10,4;"To increase
height of jump ",'',"PRESS J jus
t before the Gymnast";'',"reache
s the Trampoline. ";'';"     A li
ttle practice will get";'';"the
timing right.": PAUSE 0: CLS
  12 GO TO 20
  15 GO SUB 6000
  20 BORDER 1: PAPER 1: LET y=21
: LET J=0  LET h=16
  30 CLS : BORDER 1: PAPER 1: IN
K 7: PAPER 1
  50 PRINT #1;AT 0,11; BRIGHT 1;
 PAPER 5; INK 2; INVERSE 1;"█XX
XXX█"
  55 PRINT AT 0,0; INVERSE 1;"▄
▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀
  60 FOR y=1 TO 21: PRINT AT y,3
1,"▌";AT y,0;"▐": NEXT y
  65 PRINT AT 21,13, INK 2;"▀▀▀▀
▀"
  68 PRINT #1;AT 1,0; PAPER 6;"
,#0;AT 0,0;"▌";AT 0,31,"▐"
  70 PRINT AT 5,7; INK 7; BRIGHT
 1;"♦";AT 5,24;"♦";AT 8,3;"♦",AT
 8,28;"♦";AT 2,11;"♦";AT 2,20,"♦
"
  71 LET K$="▼▼▼▼▼▼▼▼▼ "
  72 LET F$="◣◣◣◣◣◣◣◣◢"
  73 LET E$="♦♦♦♦♦♦♦♦♦♦♦♦♦♦♦": LET
L$="██████████████"
  74 LET H$="≡"
  75 LET I$="◤"
  76 LET d$="◢"
  78 LET c$="≡≡≡≡≡≡≡"
  80 PRINT AT 15,1;c$(5 TO );AT
16,1;c$(4 TO );AT 17,1;c$(3 TO )
+I$;AT 18,1;c$(2 TO )+I$;AT 19,1
,c$( TO 5)+c$(1)+"◤"
  82 PRINT AT 15,3;F$;AT 16,4,F$
(3 TO )+I$;AT 17,5,F$(5 TO )+I$;
AT 18,6;F$(7 TO )+I$
  84 PRINT AT 14,2,F$( TO 7)+F$(
2),AT 13,3;F$( TO 6),AT 12,4;F$(
 TO 4);AT 11,5,F$( TO 2)
  86 PRINT AT 15,11;"≡≡≡";AT 15,
17;"≡≡≡"
  88 PRINT AT 11,7;E$( TO 7);AT
11,17;E$( TO 7);AT 12,8;E$( TO 6
),AT 12,17;E$( TO 6);AT 13,9;E$(
 TO 5);AT 13,17;E$( TO 5);AT 14,
10;E$( TO 4);AT 14,17;E$( TO 4)
  90 PRINT AT 19,23;"◣"+c$( TO 5
)+c$( TO 2);AT 18,25;H$+c$( TO 5
),AT 17,26;H$+c$( TO 4);AT 16,27
,H$+c$( TO 3);AT 15,28;H$+c$( TO
 2);AT 14,29;H$+c$(1)
  92 PRINT AT 18,22,"◣"+K$(1);A
T 17,21,"◣"+K$( TO 3);AT 16,20,
"◣"+K$( TO 5),AT 15,20;"◣"+K$(
TO 7)
  94 PRINT AT 14,21;K$( TO 7)+K$
(1);AT 13,22;K$( TO 7);AT 12,23,
K$( TO 5);AT 11,24,K$( TO 3)
 100 PLOT 54,88: DRAW 32,-32: PL
OT 194,88: DRAW -32,-32
 110 FOR y=21 TO 0 STEP -1
 120 IF y<=21 AND y>=h THEN PRIN
T AT y-1,15; BRIGHT 1;"☻";AT y,1
5,"¥" IF y<=20 THEN PRINT AT y+
1,15," "
 130 IF y=21 THEN BEEP .01,0
 135 IF h<=2 THEN LET h=h+1
 138 IF h=3 AND y>=21 THEN GO SU
B 2000
 140 IF y<=21 AND y>=h AND y>=2
THEN NEXT y
 142 IF y<21 THEN PRINT AT 21,13,
, BRIGHT 1; INK 2;"▀▀▀▀▀"
 148 PRINT #1;AT 1,0, PAPER 6; I
NK 9;"JUMPS: ";j;" "

 150 FOR y=h TO 21
 155 IF y=h THEN LET J=J+1
 156 IF y=21 AND INKEY$<>"j" AND
 INKEY$<>"J" THEN LET h=h+1
 157 IF y=21 AND INKEY$<>"j" AND
 INKEY$<>"J" AND h=21 THEN LET h
=20
 160 IF y<=20 AND INKEY$="j" OR
INKEY$="J" THEN GO SUB 1000
 161 IF y=21 AND INKEY$="j" OR I
NKEY$="J" THEN LET h=h-1
 163 IF y=0 THEN GO SUB 1000
 165 IF y<=21 AND y>=h THEN PRIN
T AT y-1,15; BRIGHT 1;"☻",AT y,1
5;"¥": IF y<=21 THEN PRINT AT y-
2,15;" "
 166 PRINT #1;AT 1,21; PAPER 6;
INK 9,"HEIGHT: ";22-h;" "
 170 IF y>=h AND y<=21 THEN NEXT
 y: GO TO 110
1000 IF y=21 THEN LET h=h+1: PRI
NT AT 4,24;(21-h). LET y=y+1
1005 IF INKEY$="J" OR INKEY$="j"
 AND y<19 THEN GO TO 160
1010 IF h>=18 THEN LET h=18
```

►

```
1012 RETURN
1015 PRINT AT 8,3;"Do  you wish
to try again?";AT 11,8;"(Y)es, (
N)o "
1018 IF INKEY$="" THEN GO TO 101
8
1020 IF INKEY$="Y" OR INKEY$="y"
 THEN CLS : GO TO 20
1030 IF INKEY$<>"y" AND INKEY$<>
"Y" THEN GO TO 1018
1060 RETURN
2005 FOR n=1 TO 21: BEEP .01/n,3
*n
2008 PRINT OVER 1;AT 11,7;L$( TO
 7);;AT 11,17;L$( TO 7);AT 12,8;
L$( TO 6);AT 12,17;L$( TO 6);AT
13,9;L$( TO 5);AT 13,17;L$( TO 5
),AT 14,10;L$( TO 4);AT 14,17;L$
( TO 4)
2010 PRINT AT 11,7;E$( TO 7);AT
11,17;E$( TO 7),AT 12,8,E$( TO 6
),AT 12,17;E$( TO 6),AT 13,9;E$(
 TO 5),AT 13,17;E$( TO 5);AT 14,
10;E$( TO 4);AT 14,17;E$( TO 4)
2012 NEXT n
2020 FOR n=0 TO 20: BORDER 3: FL
ASH 1: BORDER 5: FLASH 0: BEEP .
1,40: BEEP .02,35: NEXT n: LET h
=18
2028 BORDER 4: PAPER 4
2030 CLS : BORDER 4: FLASH 0: PA
PER 4: INK 1: PRINT AT 4,6;"**CO
NGRATULATIONS**";AT 7,1;"*YOUR G
YMNAST HAS REACHED THE*",AT 9,2,
"*MAXIMUM HEIGHT OF 19 UNITS*";A
T 13,6;"** IN ";j;" JUMPS. **"
2040 PAUSE 250: CLS : GO TO 1015
2050 CLS . GO TO 20
2060 RETURN
6000 CLEAR 32999
6005 PRINT AT 10,10;"Please Wait
"

6010 DATA "A▲B▼C═D◢": LET a$="1C
```

```
2A361C067F1F5D"+"5D5D141414141
4"+"FF00FF00FF00FF00"+"0103070F1
F3F7FFF"
6012 DATA "E◆F◆G═H═": LET a$=a$+
"1C3E6B7F63361C08387CFAFFE07E3C3
88000E000F800FE00010007001F007F0
0"
6014 DATA "I◣J◆K◆L◆": LET a$=a$+
"FF7F3F1F0F07030100003C7EFF7E3C1
81C3E5FFF7F0E7C189DBDEAFEE2BFBDC
B"
6020 FOR l=0 TO 12*8-1
6030 LET a=PEEK 23675+256*PEEK 2
3676
6040 LET c=16*(CODE a$(1)-48)+CO
DE a$(2)-48-7*16*(CODE a$(1)>=65
) -7*(CODE a$(2)>=65)
6050 POKE a+l,c
6060 LET a$=a$(3 TO )
6070 NEXT l
6080 CLS : GO TO 20
6090 RETURN
9900 SAVE "tramp" LINE 15
```



How the game looks in action

170+ SPECTRUM GAMES

• FREEPOST SERVICE!
• FREE CATALOGUE WITH FIRST ORDER!

☑ Please tick the titles you wish to purchase

CRASH
MICRO GAMES ACTION

SPECIAL INTRODUCTORY OFFER!

£1 off purchase price for 2 cassettes
£2 off purchase price for 3 cassettes

No stamps needed! Just use the FREEPOST address below.

TOTAL ENCLOSED
£

(Remember to subtract offer amount)

All prices shown include VAT & postage

Please make checks & postal orders payable to CRASH MICRO.

Name
Address

CRASH MICRO, FREEPOST (No stamps), LUDLOW, SHROPSHIRE SY8 IBR ☎ 0584 5620 CVG

How much have you won, how big are the bills?

These three simple programs for the ZX81, written by George Skinner, all do useful jobs — working out how much you've won at the races and calculating your power bills

Horse Racing

This program asks you to enter your stake, the odds and the name of the horse you are backing and then calculates your winnings. If you wish, it will then transfer your winnings onto the next horse — if you are lucky enough to back two winners in a day.

When asked for odds, enter in the form 3/1, 7/2, 9/4 and so on. A decimal point should be placed before pence.

This program could also be used for other forms of racing, greyhounds, for example.

Gas Bill

Check your gas bill and/or work out how much your next bill will be by entering your present meter reading along with the reading on your last bill, plus information like pence per therm and standing charge. All this will be on your bill.

```
    1 SAVE "GAS BIL[illegible]"
    5 PRINT "GAS CALCULATION"
   10 PAUSE 300
   15 CLS
   20 PRINT "ENTER PRESENT METER
READING"
   25 INPUT A
   30 PRINT "ENTER PREVIOUS READI
NG"
   35 INPUT B
   40 CLS
   45 LET C=A-B
   50 PRINT "CUBIC FEET USED = ",
C
   55 PRINT "ENTER B.T.U;S PER CU
.FT."
   60 INPUT D
   65 LET E=D/1000
   70 PRINT "ENTER PENCE PER THER
M"
   75 INPUT F
   80 LET H=F/100
   85 PRINT "ENTER STANDING CHARG
E"
   90 INPUT G
   95 LET I=C*E
  100 PRINT "THERMS USED  =  ";I
  105 PAUSE 300
  110 CLS
  260 LET J=(I*H)+G
  261 LET J=(J*100)+0.5
  262 LET J=INT J
  263 LET J=(J/100)
[illegible] PRINT AT 10,0;"THE TOTAL OF
THIS GAS"
  295 PRINT AT 11,0;"BILL IS £";J
  300 STOP
```

```
    1 REM HORSE RACING
   10 PRINT AT 13,9;"HORSE RACING
"
   12 PAUSE 400
   16 CLS
   20 PRINT AT 13,9;"[illegible]"
   30 INPUT A
   31 GOTO 40
   32 LET A=C
   40 PRINT AT 14,9;"ENTER ODDS"
   50 INPUT B
   53 PRINT AT 15,5;"ENTER HORSES
 NAME"
   54 INPUT [illegible]
   55 CLS
   60 LET C=A*B+A
   65 PRINT AT 13,0;D$;" £";A;" A
T ";B;" TO 1"
   66 PAUSE 200
   70 PRINT "YOUR WINNINGS ARE"
   80 PRINT "£";C
   85 PAUSE 200
   90 PRINT "HAVE YOU ANY MORE WI
NNERS"
   95 PRINT "YES OR NO"
  100 INPUT Z$
  102 CLS
  105 IF Z$="YES" THEN GOTO 32
  108 CLS
  110 PRINT AT 13,0;"YOUR TOTAL W
INNINGS"
  120 PRINT AT 14,0;"FOR TODAY =
£";C
  130 STOP
```

Electricity Bill

This program does just the same for electricity instead of gas and, again, the information needed will be on your last bell.

- Spaces must be left exactly as in the listings

```
    3 REM ELECTRICITY BILL
    5 PRINT "[illegible]
[illegible]"
   10 PRINT "ENTER PRESANT METER
READING"
   15 INPUT [illegible]
   20 PRINT "ENTER PREVIOUS READI
NG"
   25 INPUT B
   30 CLS
   35 LET C=A-B
   40 PRINT "TOTAL UNITS= ";C
   41 PAUSE 200
   42 [illegible]
   45 PRINT "ENTER PENCE PER UNIT
"
   50 INPUT D
   55 LET E=D/100
   60 PRINT "ENTER FIXED CHARGE"
   65 INPUT F
   66 CLS
   70 LET G=(C*E)+F
   71 LET G=(G*100)+0.5
   72 LET G=INT G
   73 LET G=(G/100)
   80 PRINT AT 10,0;"THE TOTAL AM
OUNT OF THIS"
   85 PRINT AT 11,0;"ELECTRICITY
BILL IS £";G
   90 STOP
```

VIC 20 OWNERS

READ THIS

BLANK C-20 DATA TAPES × 10 = £5·00

These tapes are super quality screwed case cassettes suitable for use with any micro, and are supplied complete with library cases. (Please add 60p P&P per 10).

VIC 32K RAMPACK = £44.95 (28159 Bytes) Free for basic top quality/fully cased.

VIC 16K RAMPACK = £32.95 Top quality fully cased add 40p per unit P&P

Add 25p P&P for each item of software

DISCOUNT SOFTWARE!

IMAGINE: Whacky Waiters, Frantic, Arcadia, Catcha Snatch £4.99 each.

LLAMASOFT: Andes Attack £7.49, Abductor Gridrunner Traxx, Laser Zone, Matrix £5.49 each

SOFT TOYS: Soft Toys 1 £4.50, Soft Toys 2 £6.39, Soft Toys 3 £5.50, The Lair £5.50, Star Warp II £6.50, Game Graphics Ed £6.30, VIC Attack & Breakout £2.50

CHALKSOFT EDUCATIONAL: Iskos £6.00, Invisible Man £6.95, Metrics Quiz £10.00, Sequences £6.00, Pascals Triangle £6.49, Decimals £8.50.

IMPACT: Star Trek £4.50, Orb £4.50, Games Pack £4.50, Terminator £6.00, Bomber £6.00.

ABRASCO: Pixplode £8.00, Android Attack £8.75, Fly Snatcher £7.00, Alien Hunter £7.00, Double Trouble £8.75, Catcha Trooper £7.00, all for the unexpanded VIC

CAMSOFT: Draughts & Metric Converter (unex/£3.25), Master Wordsearch (8-16k £5.00)

MAILING LIST: Are you selling something of interest to VIC owners? If the answer is "YES" then you need a mail list. Just send us £30 (the price of a small ad) + 40p P&P and receive by return of post 500 labels all printed with the name & address of a VIC 20 owner so that you can mail your wares directly to your prospective customers.

THE CLUB: Hire your VIC 20 software from "Comclub". Oodles of titles to choose from (nearly 90 in fact!). Including many cartridges. Why pay expensive prices before you've seen the goods in action, hire it from us and if you like it, buy it and we'll refund your hire charge or return it & try another, cassette hire £1, cartridge hire £3, subscription £9, send no money now, just your name and address and we'll send your full details & catalogue, or the club that offers massive comprehensive software library, technical advice service and "monitor" our free quarterly magazine, that's just packed with info! All prices include VAT. Make Cheques POs payable to

COMCLUB

Send Orders & Enqs. to: **24 Alton Road, Aylestone, Leicester LE2 8QA**

TEXAS INSTRUMENTS

genuine

TI 99/4A Solid State Software

THE COMPUTER TI99/4A	£99.50
EXTENDED BASIC	£52.25
MINI MEMORY	£52.25
BLASTO	£10.50
CHISHOLM TRAIL	£18.95
TUNNELS OR DOOM	£18.95
SOCCER	£12.50

FOR OTHER CRAZY PRICES

Prices inc. VAT postage & packing

SEND S.A.E. FOR FULL PRICE LIST

PLEASE MAKE CHEQUES/POs PAYABLE TO:

PARCO ELECTRICS

4 DORSET PLACE, NEW STREET,
HONITON, DEVON. EX14 8QS.
TELEPHONE HONITON (0404) 44425

A. S. N. COMPUTER SERVICES LIMITED

ANNOUNCE

Top USA Software at Discount Prices
At least 20% Discount from Top Selling US Software
Just Look at These:

	RRP	A.S.N.
Zakkon — Datasoft — Atari	33.00	25.00
Jumpman — Epyx — Atari CB64	33.00	25.00
Miner 2049ER — Big Five — Atari	41.70	30.00
Temple of Apshai — Epyx — Atari, CB64, IBM	33.00	25.00
Zork I to III — Infocom — Atari, CB64, IBM	33.00	25.00 (each)

All Prices include VAT and Post & Packing is Free (UK mainland only). This is just a selection. We have over 500 Games/Utilities/Educational and Business programmes to choose from. To obtain up to the minute info on any programme, telephone our Hot Line — 07842 57599

(Export Orders Welcome)

Send all orders with cheque P/O etc to:

A.S.N. COMPUTER SERVICES LTD,
Dept. H.C.W., 89 Station Crescent,
Ashford, Middx.

Dragon 32 — Spectrum — Tandy Color

FREE TAPE OFFER

CODE		
D/T	Lost in Space	
D/T	Draculas Castle	
D/T	Floating Bomb	ALL £5
D/T	Death Ship	

BUY ONE GET ONE FREE

D/T A-MAZE-IN **£10**
3D Maze with death defing monsters — Hours of fun for all — different game each time.
Buy a copy of A-Maze-In and get any TWO of the above mentioned FREE
"Good Value for Money" S. Drew, York

D/T/S(48) Ownership **£7**
Very realistic version of Monopoly with all the thrills and more over 24K

S(16) Games pack No. 1 (over 30K of programs) [illegible]
Bomb Run, Yellow Oil, Monster and more
Games pack No. 2 (over 30K of programs) **£4**
Snake, Zombie Lander and more
"Liked games pack one send me No. 2. C. W. Thom, Glasgow

Buy both for £6.50

BIG CASH PRIZES

D/T/S(16) Roving Knight **£5**
(includes entry to competition).
This amazing board challenge has still to be cracked
Try your luck and you could be pounds in

Code D = Dragon 32 T = Tandy S = Spectrum 16K or 48K

STATE WHICH MACHINE

Send cheques or Postal orders to:
FLATBELL Ltd
9 Franklin Road
Haddenham, Bucks HP17 8LE

Tune into the BBC for games

Don't buy another game for your BBC micro . . . until you have read our reviews. Here's what our panel thought of five newcomers

Games Pack One BBC B £4.95

Logic Systems, 129 High Street,
Cherry Hinton, Cambridge

Games Pack One is a collection of three programs written in BASIC. Firstly, Mastermind is the now classical number sequence guessing game, in which the player plays against the computer.

Sadly, unlike other games of this type, you cannot set the computer a problem to solve and data entry is very confusing

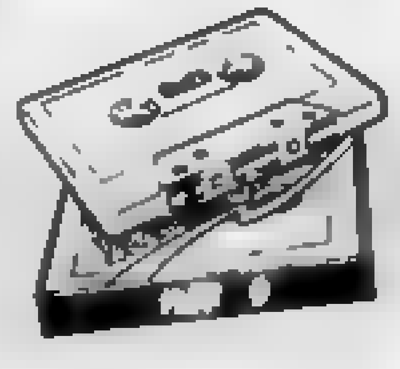
The two graphics games, Ski-Run — a slalem (their spelling) course — and Car Maze, are variations on the theme where a player avoids upward scrolling obstacles by controlling speed and side-to-side direction

The programs work, and are of the average standard of those found listed in magazines, but my only recommendation can be that they are cheap

P.D.

instructions	60%
playability	30%
graphics	30%
value for money	60%

★ ★ ★



Draughts BBC 32K £5.95

Logic Systems, 129 High Street,
Cherry Hinton, Cambridge

The playing of board games on computers is an old sport going back as far as the very beginnings of computing itself. The ability to teach a machine to be a "clever" opponent has long been a prized goal.

This program goes a long way toward that goal and plays a very good game indeed There are two levels of play and I found even level one very hard to beat

The graphics are very clear indeed and there is no doubt as to how to use the board markings or who owns the playing pieces. The use of only black and white makes the game even clearer. I know it could have been multicoloured and some people like this, but in this case it helps concentration very much

Even more important than the graphics is the speed of response This game is excellent in this respect — it's very fast indeed And, what's more, it tells you what it is considering, while it is calculating its next move I found the timing displayed on screen very off-putting as mine was always the longer, by a factor of 10 usually

The one major criticism I have is that it cheats! It can take a follow through move (after taking one piece to take another) but you can't and if you try to it takes your piece away Now that's what I call really human behaviour!

D.C.

instructions	90%
playability	80%
graphics	80%
value for money	70%

★ ★ ★ ★

Pirates BBC 32K £9.25

Chalksoft, Lowmoor Cottage,
Topedale, Wellington, Somerset

This cassette contains two programs which are linked in theme and style

One is a long adventure game in which various objects must be found, hazards overcome and secrets discovered which have to be solved before going on to the second This is a shorter program meant to be completed at one sitting during which you explore an island

The pirate theme is well maintained in both these programs and has a great deal of interest for children of all ages I was a little surprised, however, that this program should claim to be educational

It is certainly fun and would encourage language and decision making skills if played in a co-operative situation but I cannot say that it is what most poeple would regard as "proper education".

This said, the games are very well presented on a split screen format with attractive pictures, very cleverly constructed Unfortunately the response time is a little slow, for me at least You cannot turn the sound off either which is rather a pity

Another feature of the game I didn't like was the restricted vocabulary designed to prevent a child having to spell anything.

D.C.

instructions	90%
playability	70%
graphics	80%
value for money	80%

★ ★ ★ ★

Crazy Fruit BBC 32K £5.95

Logic Systems, 129 High Street,
Cherry Hinton, Cambridge

Crazy Fruit is a one armed bandit game (with no arms at all!) and is implemented in Mode 7 graphics. The teletext shapes have great charm but can only be called low resolution and have a very chunky appearance indeed

The only other fruit machine I have played on this computer (Superior Software's) had high resolution graphics and held my interest more for that reason There is no doubt, however, that this program is very cleverly done

The game has nudges, holds and you can even gamble the winnings against your reflexes by pushing the win button at just the right movement.

In fact, all the features you might desire from a fruit machine are here I do however have serious doubts as to whether I would like to play this sort of game at all It seems too distant from winning real money to me!

The only real quibbles I have with it are that there is no winning combination table (is it really so obvious to everyone?) and that it lets you 'hold' winning combinations on occasions The ending of the game has the ominous warning "We'll send the boys round" if one loses or a more cheerful message if one wins, both of which amused me greatly.

D.C.

instructions	50%
playability	50%
graphics	50%
value for money	30%

★ ★

Escape From Moonbase Alpha BBC 32K £7.95

Program Power, 8/8a Regent
Street, Chapel Allerton, Leeds
LS7 4PE

This 3D graphic adventure loads in four parts. Comprehensive instructions are displayed by the program but these become a frustration once familiar with the game as they are displayed automatically on loading

The game is fun to play and features impressive graphics and a host of characters It is a pleasant change from the rather dry narrative adventure games.

You control the movement of Joey who has been left abandoned on Moonbase Alpha His only escape is to locate the Doctor down on level seven and, if enough bags of gold have been collected on the way, the Doctor will transport him away in the Tardis

This all sounds nice and easy, until you stumble across Deadly Doris, metal maulers, green grapplers, the Demon and the Wizard. Or, worse still, you could encounter Marvin, the paranoid android, and be bored to death If you get into a sticky situation you can always take a hulk pill and turn Joey into the Incredible Hulk for five seconds

A couple of minor criticisms are the choice of keys for moving Joey around, and the pause between changing rooms is sometimes frustrating.

D.H.

instructions	80%
playability	85%
graphics	90%
value for money	85%

★ ★ ★ ★

Will you get to the treasure first?

There are more dangers than just a bloodthirsty pirate in Lance Booth's Treasure Island game for the standard TI-99/4A. Type it in and try for a chestful of doubloons

Hidden somewhere on Treasure Island is a chest crammed with gold. Can you find it before the pirate, who is also scouring the island?

You must use your skill and judgement to work out the location of the treasure, using the clues provided

Then use the arrows keys E S D X (with alpha lock button down) to go and find it.

The clues will tell you how far, in whole squares, the treasure is from the mountains and the jungle. When the treasure doesn't turn out to be where you thought it was, the game can become quite frustrating and addictive

The pirate is armed to the teeth, so if you meet him you won't stand a chance. There are other dangers to watch out for too, so take care.

You can alter the difficulty level in two ways

First, remove lines 900 and 910. This will cause the game to start as soon as the screen display is complete, rather than waiting for you to initiate play.

Alternatively, the number of swamps can be increased by raising the value of the FOR TO statement at line 720. This will mean concentrating on negotiating the swamps as much as on finding the treasure and avoiding the pirate and the other dangers

When each turn is over whatever the reason the location of the treasure is displayed X marks the spot where it was hidden

How it works

120-170 define characters
180 sets screen colour
190-270 set character colours
[illegible]
300-350 set fixed variables
360-370 check treasure not in jungle
380-390 calculate distances to treasure
400 clears screen
410-510 display clues
590-810 display island and landscape
[illegible] treasure
830-840 initial pirate location
850 stores old character at pirate square
860-870 initial player location
880-890 initial pirate and player display
900-910 wait for player to start
920-930 initial pirate direction
950-1260 main game sequence
950 check keyboard
960 clears old player
970-1040 check for movement
1050 checks new square
1070-1130 check for special situations
1140 displays new player
1150 clears old pirate
1160-1170 move pirate position
1180 checks new pirate square, stores old character
1190-1200 check for special situations
1210-1220 check pirate still on island
1230 displays new pirate
1240-1250 sound effects
1260 sends program back to start of game sequence
1270-1310 change pirate direction if needed
1320-1340 fell in sea
[illegible]
1380-1400 fell in swamp
1410-1430 lost in jungle
1440-1460 lost in moutains
1470-1490 pirate caught you
1500-1520 pirate found treasure
1530-1550 sound effects
1560-1670 you found gold
1680-1700 display message
1710-1740 play again ?
1750 end

```
100 REM  TREASURE ISLAND
110 REM  BY LANCE BOOTH
120 CALL CHAR(97,"FFFFFFFFFFFFFFFF")
130 CALL CHAR(96,"00001054387C")
140 CALL CHAR(120,"003C7E7E3C1010")
150 CALL CHAR(136,"0010103C3CFEFE")
160 CALL CHAR(144,"101038541028206C")
170 CALL CHAR(152,"3C5A7E3C18661866")
180 CALL SCREEN(5)
190 CALL COLOR(2,4,4)
200 FOR I=3 TO 8
210 CALL COLOR(I,16,2)
220 NEXT I
230 CALL COLOR(9,5,4)
240 CALL COLOR(13,13,4)
250 CALL COLOR(14,7,4)
260 CALL COLOR(15,16 4)
270 CALL COLOR(16 2 4)
280 REM  SET VARIABLES
290 RANDOMIZE
300 JR=INT(15*RND)+5
310 JC=INT(12*RND)+16
320 MR=INT(17*RND)+4
330 MC=INT(12*RND)+14
340 TR=INT(18*RND)+4
350 TC=INT(17*RND)+14
360 IF (TR<JR-1)+(TR>JR+2)THEN 390
370 IF (TC>JC-2)*(TC<JC+2)THEN 340
380 X=INT(SQR((TC-JC)*(TC-JC)+(TR-JR)*(TR-JR)))
390 Y=INT(SQR((TC-MC)*(TC-MC)+(TR-MR)*(TR-MR)))
400 CALL CLEAR
410 PRINT "TREASURE"
420 PRINT
430 PRINT Y;" FROM"
440 PRINT
450 PRINT "MOUNTAINS"
460 [illegible]
470 PRINT X;" FROM"
480 PRINT
490 PRINT "JUNGLE"
500 PRINT
510 PRINT "CAN YOU"
520 PRINT
530 PRINT "FIND IT"
540 PRINT
550 PRINT "BEFORE THE"
560 PRINT
570 PRINT "PIRATE"
580 REM  DISPLAY ISLAND
590 FOR R=4 TO 21
600 CALL HCHAR(R 14,43 17)
610 NEXT R
```

Hints on conversion

The program should convert fairly easily to any computer with user-defined characters. Here is an explanation of some of the TI BASIC commands I have used:

CALL CHAR (ASCII code number, hexadecimal string) defines characters used in the program. The hexadecimal string defines the pattern to be given to the character with the ASCII code stated

CALL HCHAR (row number, column number, ASCII code, number of repetitions) places character with ASCII stated, at row and column specified, and optionally repeats it horizontally the number of times stated

CALL VCHAR (row number, column number, ASCII code, number of repetitions) works in the same way as CALL HCHAR only repeats vertically

CALL GCHAR (row number, column number, numeric variable) equivalent of PEEK, assigns ASCII code of character at row and column stated to numeric variable

CALL CLEAR clears the screen

CALL COLOUR (character set, foreground colour code, background colour code) specifies foreground and background colours for all characters in set specified

CALL SCREEN (colour code) specifies screen colour using colour code

CALL SOUND (duration, frequency, volume) produces sound. Duration in milliseconds, frequency in Hertz (or noise code), and volume in scale from 0 loudest to 30 quietest

CALL KEY (key unit,k,s) equivalent of INKEY$, returns code of key pressed in variable k

▶

```
620 CALL VCHAR(15 13,43 5)
630 CALL HCHAR(3,13,43,4)
640 CALL HCHAR(3 23,43,9)
650 CALL VCHAR(2,31,43,11)
660 CALL HCHAR(22,19,43 9)
670 REM  DISPLAY LANDSCAPE
680 CALL HCHAR(JR-1,JC-1,120,4)
690 CALL HCHAR(JR,JC-2,120,4)
700 CALL HCHAR(JR+1,JC-2,120,5)
710 CALL HCHAR(JR+2,JC-1,120,4)
720 FOR I=1 TO 10
730 SR=INT(10*RND)+4
740 SC=INT(17*RND)+14
750 CALL GCHAR(SR,SC,GET)
760 IF GET<>43 THEN 730
770 CALL HCHAR(SR,SC,96)
780 NEXT I
790 CALL HCHAR(HR HC,136 5)
800 CALL VCHAR(4,20,97,4)
810 CALL VCHAR(7,19 97 6)
820 CALL HCHAR(TR TC,44)
830 PR=INT(17*RND)+5
840 PC=INT(15*RND)+15
[redacted] CALL GCHAR([redacted],PC,GETP)
[redacted] HR=22
    HC=23
    CALL HCHAR(PR PC 152)
    CALL HCHAR(HR HC,144)
    CALL KEY(3 K S)
910 IF S=0 THEN 900
[redacted] RDIR=1
    CDIR=1
    REM  GAME
    CALL KEY(3 K,S)
960 CALL HCHAR(HR,HC,43)
970 IF K<>83 THEN 990
980 HC=HC-1
990 IF K<>68 THEN 1010
1000 HC=HC+1
1010 IF K<>69 THEN 1030
1020 HR=HR-1
1030 IF K<>88 THEN 1050
1040 HR=HR+1
1050 CALL GCHAR(HR HC,GETH)
1060 REM  POSITION CHECK
1070 IF (GETH=32)+(GETH=31)THEN 1320
1080 IF GETH=97 THEN 1350
1090 IF GETH=96 THEN 1380
1100 IF GETH=120 THEN 1410
1110 IF GETH=136 THEN 1440
```

```
1120 IF GETH=152 THEN 1470
1130 IF GETH=44 THEN 1500
1140 CALL HCHAR(HR HC,144)
1150 CALL HCHAR(PR,PC,GETP)
1160 PC=PC+CDIR
1170 PR=PR+RDIR
1180 CALL GCHAR(PR,PC,GETP)
1190 IF GETP=44 THEN 1500
1200 IF GETP=144 THEN 1470
1210 IF (PC<14)+(PC>30)THEN 1270
1220 IF (PR<4)+(PR>21)THEN 1300
1230 CALL HCHAR(PR,PC,152)
1240 CALL SOUND(100,110 0)
1250 CALL SOUND(100,220,0)
1260 GOTO 940
1270 CDIR=-CDIR
1280 IF (PR<4)+(PR>21)THEN 1300
1290 [redacted]
1300 
1310 GOTO 940
1320 GOSUB 1530
1330 M$="THE SHARKS IN THE SEA ATE YOU"
1340 GOTO 1600
1350 [redacted]
1360 M$="YOU DROWNED IN THE RIVER"
1370 GOTO 1600
1380 GOSUB 1530
1390 M$="YOU FELL IN THE SWAMP"
1400 GOTO 1600
1410 GOSUB 1530
1420 M$="YOU'RE LOST IN THE JUNGLE"
1430 GOTO 1600
1440 GOSUB 1530
1450 M$="YOU'RE LOST IN THE MOUNTAINS"
1460 GOTO 1600
1470 GOSUB 1530
1475 CALL HCHAR(PR,PC,152)
1480 M$="THE PIRATE CAUGHT YOU"
1490 GOTO 1600
1500 GOSUB 1530
1510 M$="THE PIRATE FOUND THE TREASURE"
1520 GOTO 1600
1530 REM  FAILURE MUSIC
1540 FOR N=-8 TO -1
1550 CALL SOUND(+350 N,0)
1560 NEXT N
1570 RETURN
1580 REM  SUCCESS
1590 RESTORE 1640
```

```
1600 READ TONE DRN
1610 IF DRN=0 THEN 1670
1620 CALL SOUND(DRN,TONE 0)
1630 GOTO 1600
1640 DATA 392 300 392 300 440 300 370,450 392,150,440,300
1650 DATA 494,300 494 300 523,300,494 450 440,150,392,300
1660 DATA 440 300 392 300 370,300 392 900 0 0
1670 M$="YOU'RE RICH YOU FOUND THE GOLD"
1680 FOR J=1 TO LEN(M$)
1690 CALL HCHAR(2,1+J ASC(SEG$(M$,J,1)))
1700 NEXT J
1710 PRINT
1715 CALL HCHAR(TR-1,TC 88)
1720 INPUT "WANT TO PLAY AGAIN? ":R$
1730 IF SEG$(R$,1,1)="Y" THEN 200
1740 IF SEG$(R$ 1,1)<>"N" THEN 1720
1750 END
```

You could be on our pages

We welcome programs articles and tips from [redacted]

PROGRAMS should, if possible, be computer printed to a width of 48 characters (use a new ribbon) and/or sent on cassette. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.

ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid [redacted] computer users.

Competitive rates are paid.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly, [redacted]
Charing Cross Road, London WC2H 0EE

LOOKING FOR SPARE TIME EARNINGS?

Then why not sell software to your friends and workmakes.

There are probably hundreds of micro users in your area looking for software who are wary of mail order and cannot find a local dealer. You can become that local dealer.

We are looking for agents in all areas to sell software for the Spectrum, ZX81, VIC-20, CBM 64, BBC, Dragon, Atari, Oric 1 and Lynx. All the latest titles in stock. Write now for full details or telephone if you prefer.

Joysticks, Joystick interfaces and Spectrum sound boosters along with CBM 64, Spectrum and Lynx 48K Computers also available.

If you are interested in becoming a Bytewell agent in time for the predicted boom in sales this Xmas then write or telephone now.

BYTEWELL, 203, COURT ROAD,
BARRY, S. GLAMORGAN, CF6 7EW
Telephone (0446) 742491

SPECTRUM
TRS 80

LOTS OF INTERESTING SOFTWARE FOR THE ABOVE, E.G:-
SPECTRUM EDUCATIONAL GAMES
CASSETTE 1. ARITHMETIC GAMES
CASSETTE 2. LOGIC GAMES
PRICE £4.95 EACH
LEVEL 1 IS EASY. HIGHEST LEVEL IS FORBIDDEN TO MERE MORTALS.

CAMEL MICROS. 33A COMMERCIAL RD.,
WEYMOUTH, DORSET (03057) 70092

*** TI99/4A PRODUCTS ***

SOFTWARE

BLAST IT As reviewed in H.C.W. Disarm Bombs in order with a wire guided Robot, Time Limit, Hall of Fame, 5 levels of play etc.

CODE BREAK / 3D MAZE Code Break only reviewed in H.C.W. A master mind (game) like programme 3D maze added for extra value.

CORE Under review in H.C.W. Fly past Birds and Planes to arrive at the caves and on to the maze and colour full ending.
All @ £3.50 each (£2.00 refund against further purchase if returned within 21 days).

HARDWARE Cassette leads single £4.35 Dual £5.45 Cassette Records £24.98 with single lead £28.75 With Dual lead £29.75 All prices inclusive B.A.E. for illustrated list
CHRISTINE COMPUTING, 6 FLORENCE CLOSE, WATFORD
Tel: 09273 72941

The Simulation and Education People

and now for something completely different...
TITRE

Sensational titration simulation! Yes, titrate on your SPECTRUM. Complete with screen display of apparatus, all indicator colour changes, burette control, and warning of end-point. Choice of concentration and 10 indicators. Plus manual.

Titre (16/48K) £4.95
Titre (48k) £8.50 complete with 3 extra programs: pH plots, worksheet and indicator file.

s.a.e. for complete catalogue
Trade and export enquiries welcome
WANTED: Those completely different programs. Send samples for prompt evaluation. Excellent royalties

CLOUD 9 SOFTWARE (HCW 5)
4, DOLVIN ROAD, TAVISTOCK, PL19 9EA

Nearly **700** Programmes
IN STOCK
Ring for our Price List

CLWYD PERSONAL
COMPUTERS

Unit 19, Daniel Owen Precinct, Mold, CH7 1AP
Telephone: Mold 56842

ATARI
400 inc BASIC £115
800 £290
48K Lynx £215
COMMODORE 64 £225
ORIC 1 48K £139.99p
Phone Orders Welcome on **0352-56842**

Postage & Packaging FREE
NEXT DAY DELIVERY AVAILABLE Please ring for details:
I enclose cheque/P.O. for £ __________
or please debit my Access Card No.
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
NAME ____________________
ADDRESS ____________________

GEOGRAPHY 1
ZX Spectrum 48K

AT LAST! FUN FOR ALL THE FAMILY

An addictive way to become more familiar with the world around you. Travel around the world on a cursor! trying to locate a country, Sea or British county.

Attempt to remember locations and capitals during tests. 100's of Countries/Counties/Seas to learn GREAT FUN! GREAT GRAPHICS! send £6.50 inc. to

KEMSOFT Software THE WOODLANDS
KEMPSEY, WORC'S. WR5 3NB

How you can crack the code

If you want to move into machine code on your VIC, Allen Webb tells you the whys and wherefores of assemblers and monitors

Most VIC owners will find that BASIC is a perfectly good language for most applications. Occasionally, however, you need some extra speed, and it's at times like that when you could do with a nice machine code routine.

Assuming that you know how to write the routine, for very short routines it is feasible to enter the code directly.

For programs of any length, though, an assembler is invaluable. In this article, I plan to describe what assemblers are, which type is suitable for which user and discuss some of the commercially available assemblers.

But first, for non-users of machine code, here's a thumbnail sketch of the problem. Many VIC users will appreciate that BASIC, as a high level language, is not the actual language understood by the processor.

As far as the processor is concerned, its instructions consist of binary numbers stored in memory. While these instructions are readily understood by the processor, they mean nothing to us poor humans. In order to make life simpler, a set of mnemonics was developed

These mnemonics consist of three-letter codes which describe the instruction, eg the mnemonic for 'Load X register' is LDX, and the mnemonic for 'Return from subroutine' is RTS.

Clearly, LDX and RTS are easier to understand than the corresponding machine codes ($R2 and $60 respectively). Using the system of mnemonics it is straightforward to write the preliminary or source code.

You then have to convert the source code to the machine code that the processor can understand. This is done by a program called an assembler (because the source code is assembled, the mnemonic system is often called assembly language). The assembled code is usually called the object code.

Listing 1 gives an example source code. The two columns on the extreme right are the mnemonic representation of the program. The hexadecimal numbers are the converted machine code values.

OK, so now we know why we need assemblers. The clever thing about most assemblers is that they have little extras which make life even easier.

Consider the situation where your routine uses a number of memory locations to store data. Rather than force you to remember the values of such locations, you can name them (cf declaring variables in BASIC). Lines 10 to 19 in listing 1 show how this is done.

Similarly, you can name labels for looping (eg lines 220, 330 and 395).

In order to deal with all these labels and names, this type of assembler converts the source code to object code in two steps. Consequently these are called 'two pass' assemblers.

There are a number of simpler 'one pass' assemblers on the market which can be used to produce an object code. They have the restriction that you cannot use names for locations or labels for jumps or loops.

One other item I should mention is the machine code monitor.

Owners of the Commodore PET are fortunate in that their machines (except the first series) have a monitor in ROM. VIC and Commodore 64 owners are not so fortunate.

OK, so what is a monitor? Well, it's simply a program (normally in machine code) which makes the manipulation of RAM contents easy.

The basic monitors normally enable you to examine and change the contents of RAM, save and load programs and data direct from and to RAM, to examine and change the registers and execute machine code routines direct. In all, a very handy tool.

So what is there on the market? I will describe two packages, both in cartridges, which give examples of both one and two pass assemblers.

A very good example of a two-pass assembler is the Mikro Assembler (made by Supersoft and marketed by Audiogenic). This is a large packaged offering some 16K of ROM and 3K of RAM. This cartridge offers a perfect environment for the assembly and disassembly of machine code routine as well as commands of high resolution graphics, a simple monitor and other useful commands.

The assembler is two-pass and supports labels and names of unlimited length, the usual extra commands (eg the greater than and less than signs for least and most significant bytes) and pseudo op-codes for word tables (BYT, TXT and BYT).

Numerical values can be entered in decimal, hexadecimal, octal or binary. In all, an excellent assembler, of quality comparable to more expensive packages.

Because of the slowness of cassette storage, all assembly occurs in RAM. The BASIC editor is used to create the source code (this can be saved or loaded in the same way as a BASIC program). On assembly, the source code is assembled and the object code placed in RAM at the required location.

In all, a very convenient and simple system. The machine code can be saved, loaded or examined using the monitor. You can examine any coding in memory with a built in disassembler.

If you have a printer, you can get a hard copy of the source and object codes and any disassembly (Listing 1 was produced by the Mikro assembler).

The main problem of direct assembly to RAM is that you cannot locate code at an area outside your RAM. In addition, if you want to create a program of a decent size, you really need 16K RAM.

You can't use more than 16K expansion because part of the Mikro ROMs sit at $6000 (although you can assemble code above $6000 by use of the spare created during assembly).

The extra commands with the package allow you to use high resolution graphics to plot lines and dots. There are a number of commands to enable you to pass values to and from the internal registers; a very handy facility.

An equally useful command is NUMBER which will perform conversions between the four possible bases.

Overall, the Mikro assembler is an excellent package which is worth considering if you plan some serious work in machine code.

If the assembler is so clever, why buy a monitor? Well, although the Mikro assembler contains a simple monitor, for advanced manipulation of code and memory a full blown monitor is the only answer. The Commodore monitor cartridge is one such package.

In addition to the simple commands for saving, loading and examining and moving code, the package contains a range for more advanced fun and games.

First there is a single-pass assembler. This is really only any use for short machine code routines

As a useful extra to disassembly, there are commands that allow you to search for specific bytes and decode ASCII characters

By far the most useful commands are for step by step running of code. This allows you to debug your masterpiece without the risk of a crash. You can set breakpoints which help this activity.

There are a range of other commands which makes this package a most powerful tool

Right, here comes the crunch. Which type of product do you buy? Ideally, given the cash, the answer is both.

[illegible]

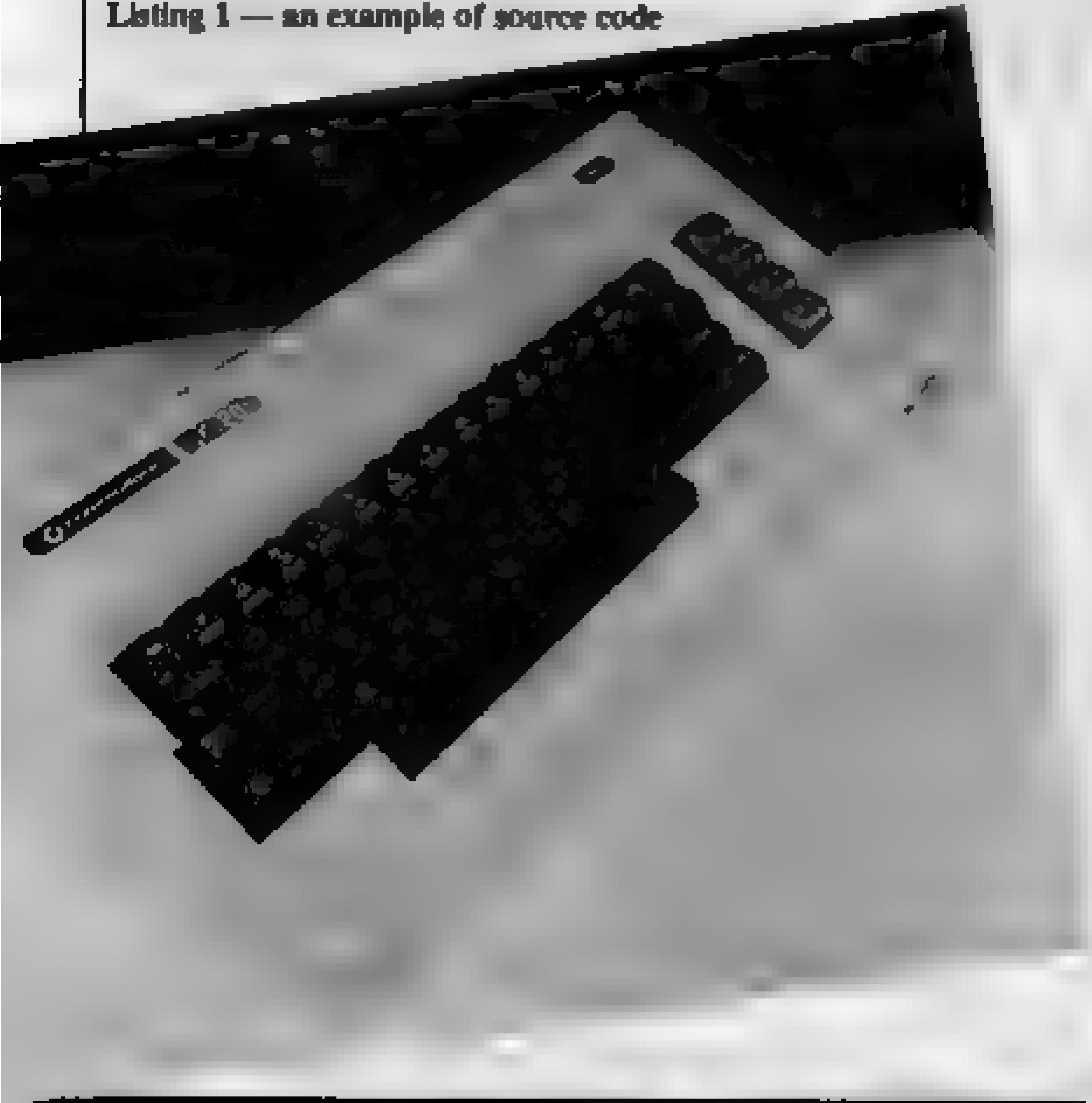
Product	Medium	Addresses	Facilities	Cost	Supplier
Mikro Assembler	Cartridge	$6000, $A000	Assembler (2 Pass) Disassembler Graphics Tiny Monitor Various other commands	£48.95	Audiogenic PO Box 88 Reading Berks
CBM Monitor	Cartridge	$7000	Monitor, Assembler (1 Pass) Disassembler Trace Other commands	£34.95	Commodore Most retailers

Allowing for the limited resources of the average VIC owner, my answer is "if you are new to machine code, the Commodore monitor is a good choice since most of your routines will be short, and you will need to debug your programs.

If you are an experienced machine code user, though, the assember package would be best Overall, I can recommend both packages as being good value and reliable products

```
 10  0400                CBUF=$0400
 11  0500                VBUF=CBUF+$100
 12  0520                NBUF=VBUF+$20
 13  0540                COML=NBUF+$20
 14  0541                VL=COML+$1
 15  0542                NL=VL+$1
 16  0543                COUNT=NL+$1
 17  0544                VERBNO=COUNT+$01
 18  FFF0                CURS=$FFF0
 19  0545                NOUNO=VERBNO+$01
 30  033C                *=$4000
200  4000  A200                     LDX  #0
210  4002  A920                     LDA  #32
220  4004  9D0005  L0               STA  VBUF,X
230  4007  9D2005                   STA  NBUF,X
240  400A  E8                       INX
250  400B  E020                     CPX  #32
260  400D  D0F5                     BNE  L0
270  400F  A900                     LDA  #0
280  4011  8D4105                   STA  VL
290  4014  8D4205                   STA  NL
295  4017  8D4505                   STA  NOUNO
300  401A                ;SPLIT COMMAND INTO VERB & NOUN
310  401A                ;
320  401A  A200                     LDX  #00            ; FIND VERB
330  401C  BD0004  L1               LDA  CBUF,X
340  401F  C920                     CMP  #32
350  4021  F009                     BEQ  L2
360  4023  9D0005                   STA  VBUF,X
370  4026  E8                       INX
380  4027  EC4005                   CPX  COML
390  402A  D0F0                     BNE  L1
395  402C  8E4105  L2               STX  VL
400  402F  EC4005                   CPX  COML           ;IS THERE A NOUN?
410  4032  D003                     BNE  L3
```

Listing 1 — an example of source code



GRIFFIN
Software

Treasure Island an exciting adventure game for the VIC-20, CBM.64, SPECTRUM only £6.50

TIME SLIP another adventure where you fall back in time to do battle with prehistoric monsters. For VIC-20, CBM.64 and SPECTRUM £6.50

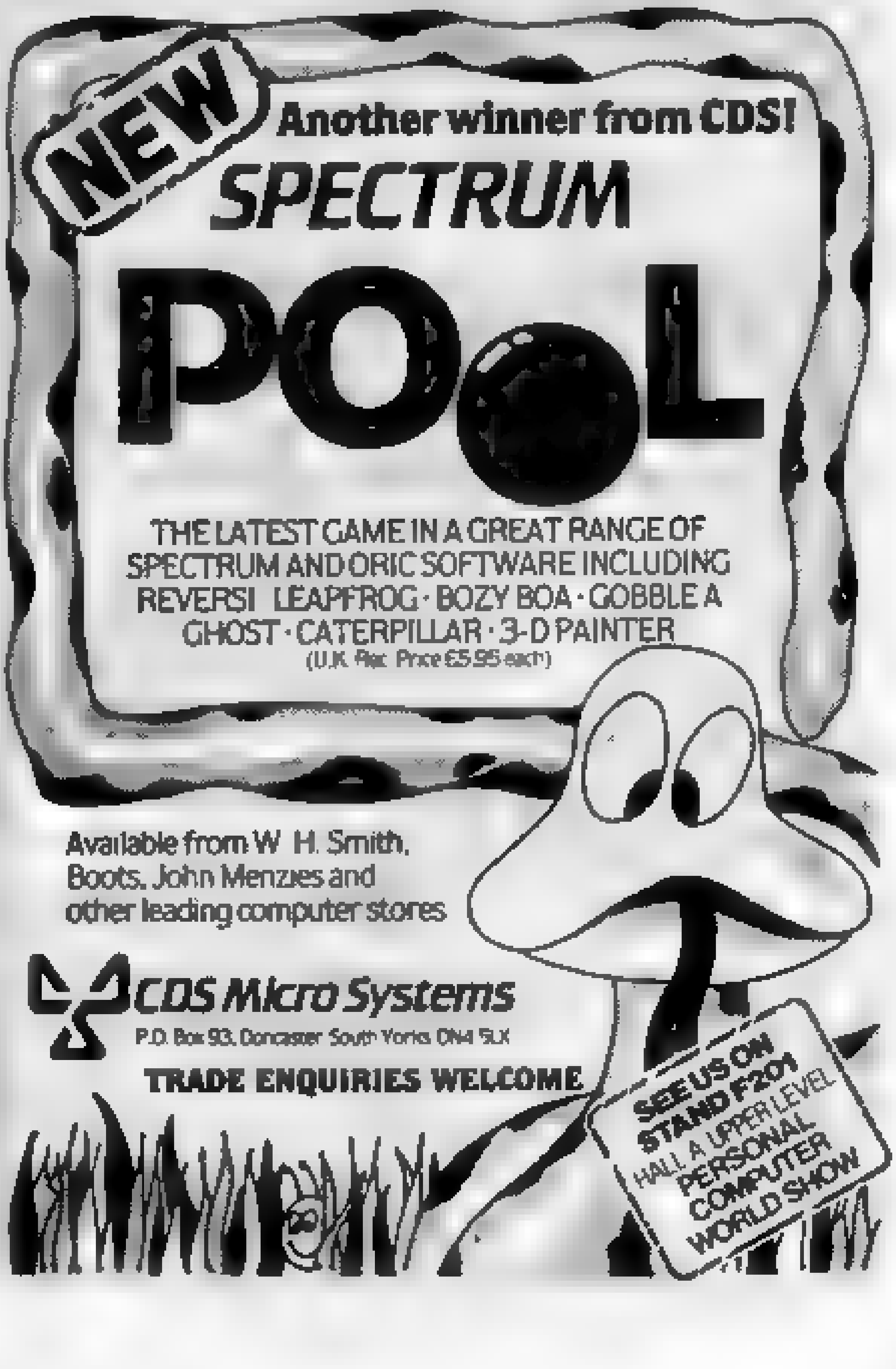
STAMPIT stamp out the camp fire with your boot before it spreads to the tents or cars and gets out of control. TI99/4A £5.50

EARLY BIRD eat the worms but beware of the cat who is after you. You cannot escape Grand-Daddy worm for long. TI99/4A £5.50

PRAIRIE SHOOTOUT high noon gunfight. Shoot the cacti to increase your score before killing your opponent. Two player J/Stick or play your computer. BBC 32K £6.50

C.E.S.I.L. Computer Education in Schools Introductory Language. An implementation of the popular introduction to Assembler Language. BBC 32K £6.50

MACHINE CODE PROGRAMMERS WANTED
DEALER ENQUIRIES INVITED
free colour photograph with every program sold
48, RANNOCH DRIVE, MANSFIELD
NOTTINGHAMSHIRE TEL: 646436



Another winner from CDS!
SPECTRUM POOL
THE LATEST GAME IN A GREAT RANGE OF SPECTRUM AND ORIC SOFTWARE INCLUDING REVERSI · LEAPFROG · BOZY BOA · GOBBLE A GHOST · CATERPILLAR · 3-D PAINTER
(U.K. Rec. Price £5.95 each)
Available from W. H. Smith, Boots, John Menzies and other leading computer stores
CDS Micro Systems
P.O. Box 93, Doncaster South Yorks DN4 5LX
TRADE ENQUIRIES WELCOME
SEE US ON STAND F201 HALL A UPPER LEVEL PERSONAL COMPUTER WORLD SHOW

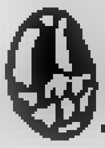
Best for software — every week

TWO FOR THE DRAGON 32

FROG-HOP: More idiot frogs! This version of the popular arcade game uses hi-res graphics and machine code for a fast moving game.

PRICE: £7.75

GALACTIC SLUGS: These sneaky, slimy, squamulous creatures will slime all over you if you don't shoot 'em down quick. Another m/c hi-res game.



PRICE: £7.75

A FAT FROGLET.

TWO FOR THE SPECTRUM 48K

FREE-ZONE: Reversi — with a twist! Will you save England, or will you blow it up? As in the original, you will have to think ahead to win.

PRICE: £6.50.

CHARACTER GENERATOR: Create your own characters with this very useful program. Full instructions are included.

PRICE: £8.45

ORIC 48: T-COMP

At last a compiler for the Oric: converts your BASIC program to run at speeds approaching that of an equivalent machine code program. This is a very useful introduction to compilers and m/c language.

PRICE £12.95.

AND FOR THE T.I.99/4A

MUSIC-MACHINE: Play around with Texas sound. This program uses the chords, and shows you which ones you're using. Finished pieces can be stored on tape, and used in your own programs.

KAT-TRAXX: See how many bugs, and fruit you can eat, and avoid your cast off skins. Then disappear down the hole in the middle to the next screen! — A BUG.

CRYSTAL SWEEP: A game of strategy for up to five players. Collect the crystals, but stop your opponents from collecting. A game for the all the family together.

STEEPLECHASE: Guide your horse round the racecourse, without falling off. 4 skill levels make this an intriguing game.

ALL THE ABOVE RUN UNEXTENDED. AND COST £7.75 EACH.

◆ ◆ ◆

For a full catalogue, or to order please contact:

BAMBY SOFTWARE; LEVERBURGH, ISLE OF HARRIS. PA83 3TX.
TELEPHONE: 085 982 313.

Please include payment with your order; ACCESS welcomed.

DEALERS please contact:

PCS DISTRIBUTION, UNIT 6 SCOTSHAW BROOK, BRANCH ROAD,
DARWEN, LANCS. TEL: 0254 691211

Both BAMBY SOFTWARE and PCS are members of the COMPUTER TRADE ASSOCIATION.

ANNOUNCING

THE QUILL

FOR THE 48K SPECTRUM AT £14.95

The Quill is a major new utility written in machine code which allows even the novice programmer to produce high speed machine code adventures of superior quality to many available at the moment without any knowledge of machine code whatsoever.

Using a menu selection system you may create well over 200 locations, describe them and connect routes between them. You may then fill them with objects and problems of your choice. Having tested your adventure you may alter and experiment with any section with the greatest of ease. A part formed adventure may be saved to tape for later completion. When you have done so the Quill will allow you to produce a copy of your adventure which will run independently of the main Quill editor, so that you may give copies away to your friends. The Quill is provided with a detailed tutorial manual which covers every aspect of its use in writing adventures. It is impossible to describe all the features of this amazing program in such a small space, so we have produced a demonstration cassette which gives further information and an example of its use. This cassette is available at **£2.00** and the Quill itself is £14.95

ALSO NEW FOR THE 48K SPECTRUM

DIAMOND TRAIL **£4.95**
The latest of our machine code adventures sets you the task of recovering the Sinclive diamond. But first you must overcome many problems in a city fraught with danger and intrigue

MAGIC CASTLE (m/c 48K only) **£4.95**
A gripping adventure. Rescue the princess, but beware of booby traps and vampires

GAMES FOR THE 16K or 48K SPECTRUM

MONGOOSE (m/c) and BEAR ISLAND **£4.95**
Fast and furious arcade action with these colourful high speed games

REVERSI (m/c) and POKER DICE **£4.95**
Classic strategy and addictive gambling games

TIME-LINE (m/c) and TASKS **£4.95**
A superb 16K text adventure and a collection of mind stimulating puzzles

3D MAZE OF GOLD (m/c) **£5.95**
Amazing full colour, high resolution views as you walk around a large labyrinth

EXTENDED SPECTRUM BASIC
WITH
WHITE NOISE and GRAPHICS £5.95

A collection of Machine Code routines to add over 20 extra commands to Basic. These give total control over the screen via a window which can be scrolled (in eight directions), inverted, cleared, bordered and shaded (thus extending the normal range of colours). White Noise produces true explosions, gunshots and other sound effects, includes many other routines. Supplied with a comprehensive manual.

EDUCATIONAL TAPES

CESIL **£5.95**
If you are starting 'O' level Computer studies this year you may well be required to learn the CESIL language. So we have produced CESIL interpreters for the ZX Spectrum, 16K ZX81 and Dragon 32 which will allow you to write and run CESIL programs on your home computer thus gaining the familiarity with the language that examinations require. Supplied with full manual. Please specify machine type when ordering.

HAL **£5.95**
This is another 'O' level language used in some areas and is available for the ZX Spectrum only. Supplied with instructions

VISUAL PROCESSOR **£5.95**
Provides an on screen display of a simple micro-processor showing its internal operation as it runs programs. Full manual supplied. Available for the ZX Spectrum Only

Our software is now available from many computer shops nationwide, or direct from us by post or phone. SAE for details. Dealer enquiries welcome

GILSOFT
30 Hawthorne Road, Barry
South Glam, CF6 8LE
Tel: (0446) 736369

TELEPHONE
WITH YOUR
ORDER

VISA

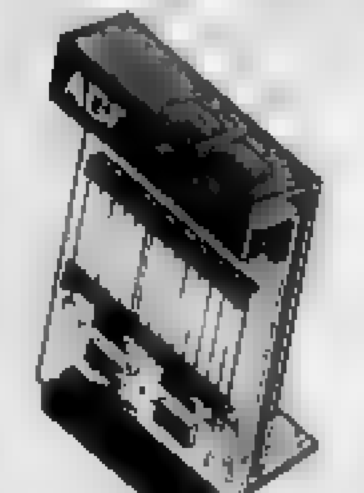
AGF

MICRODRIVE COMPATIBILITY

Computer
Trade
Association
Member

PROGRAMMABLE JOYSTICK INTERFACE for Spectrum or ZX81

ONLY 32.95 +£1.00P&P



PROGRAMMABLE INTERFACE

[illegible]

PACKAGE CONTENTS SUPPLIED

- [illegible]

KEY FEATURES

- Programmable design gives TOTAL software support.
- Accepts Atari, Commodore Pet, Wico, Starfighter, Quick Shot, Le Stick etc.
- Rear extension connector for all other add ons.
- Free demo program and instructions.

JOYSTICKS

CONTROLLERS
FOR USE WITH OUR INTERFACE Module or VIC 20, Commodore 64, Atari VCS, Atari 400, Atari 800
If you require extra Joysticks for our original interface module mark order 'OLD' Joysticks
ONLY £7.54 inc VAT + P&P

PLEASE ALLOW 28 DAYS FOR DELIVERY
ALL ORDERS CONFIRMED

FROM: MR/MRS/MISS
ADDRESS
HCW30
SEND C.W.O. (NO STAMP NEEDED) TO: A.G.F. HARDWARE, DEPT
FREEPOST, BOGNOR REGIS, WEST SUSSEX PO22 9BR

QTY	ITEM	ITEM PRICE	TOTAL
	PROGRAMMABLE INTERFACE	33.95	
	JOYSTICK(S)	7.54	
	PACK(S) QUICK REFERENCE CARDS	1.00	
ONE	VIDEO GRAFFITI	FREE	
	ZX81 ☐ ZX SPECTRUM ☐ Please tick	FINAL TOTAL	

DEALER ENQUIRIES WELCOME   EXPORT PRICES ON APPLICATION

JOYSTICK INTERFACE II for Spectrum or ZX81

ONLY [illegible] +£1.00P&P

NEW PRICE 15.95

JOYSTICK INTERFACE

[illegible]

KEY FEATURES

- [illegible]

COMPATIBILITY CASSETTES ☐ £4.95

[illegible]

Cassette One contents	Cassette Two contents
ARCADIA	CENTIPEDE
SCHIZOIDS	PLANETOIDS
HUNGRY HORACE	JET PAC
HORACE GOES SKIING	PSSST
SPECTRES	3D COMBAT ZONE
PENETRATOR	INVADERS

NEW!

JOYSTICKS

CONTROLLERS
ONLY £7.54
inc VAT + P&P

☐ Available from us

* State "AGF version"

JOYSTICK INTERFACE II COMPATIBLE SOFTWARE ZX SPECTRUM

[illegible]

PLEASE ALLOW 28 DAYS FOR DELIVERY
ALL ORDERS CONFIRMED

FROM: MR/MRS/MISS
ADDRESS
HCW30
SEND C.W.O. (NO STAMP NEEDED) TO: A.G.F. HARDWARE, DEPT
[illegible]

QTY	ITEM	ITEM PRICE	TOTAL
	INTERFACE MODULE II	16.95	
	JOYSTICK(S)	7.54	
	SOFTWARE		
	SOFTWARE		
	ZX81 ☐ ZX SPECTRUM ☐ Please tick	FINAL TOTAL	

DEALER ENQUIRIES WELCOME   EXPORT PRICES ON APPLICATION

Our reaction to this action

Our reviewers rate these arcade-style games for a range of micros

City Patrol

[illegible]

Macronics, 26 Spiers Close,
Knowle, Solihull, W. Midlands

The graphics are very good, and a welcome change from target-type games such as Invaders or [illegible]

You are in command of a laser-firing ship zooming among the skyscrapers of a large city, trying to intercept and destroy the aliens which are descending to destroy the buildings.

The skyscrapers, in four 'layers', appear to pass across the screen in different directions according to your use of the controls.

The motion is, in the style of the ZX81, a bit jerky; but the 3D effect is good. Nearby buildings pass quickly, distant ones appear to go slowly

[illegible] back. There are 'lightning' [illegible] fects as they fire their guns and if they manage to land they destroy a chunk of city. (They can also [illegible])

Be warned — the aliens are not easy to catch. You can zoom past them and then have to return and search [illegible] among the buildings!

City Patrol is a straightforward game to play, it keeps score but does not offer different skill levels. But the format and the graphics make it a little different from most of the other games I've tried for the ZX81.

C.C-R.

instructions	[illegible]
playability	[illegible]
graphics	[illegible]
value for money	[illegible]

★ ★ ★ ★

[illegible]

[illegible]

J. Morrison, 2 Glendale Street,
Leeds LS9 9JJ

A very professional product, 100% machine code and auto-running during loading. The cassette comes packaged in a smart 'mini-video' type case, with an impressive sleeve depicting a bright red vulture protecting its eggs

As with most good arcade style games, the idea behind it is simple — kill the flock of vultures as they swoop to destroy you.

However when you clear them from the sky, half a [illegible] eggs begin to hatch, each with an impressive noise

These 'super vultures' are, harder to dispose of, as they change colour and home in on [illegible]

They can only be killed whilst they are in their original colour and if you survive, the speed increases with each successive screen, so the vultures are bound to get you in the end!

You will, however, have the posthumous pleasure of recording the high score on screen

The game is in colour with excellent graphics and is also very effective in black and white.

It requires one joystick, which is also used to select the speed of play, using a neat moving cursor [illegible]

[illegible] to arcade addicts of all ages. E.C.

instructions	80%
playability	95%
graphics	85%
value for money	90%

★ ★ ★ ★ ★

Panic 64
Commodore 64 £7

Interceptor Micros, Lindon House, The Green, Tadley, Hants

Panic 64 is a ladder game for the Commodore 64

With your bombs you blast holes in the different levels which you then have to entice the monsters to fall through. The higher the levels, the more floors they have to fall through to meet their doom

An enjoyable game with good instructions and active on tactics to help you score a bonus but we did have a couple of problems

Several times after escaping our pursuers and getting the holes lined up, the monsters suddenly got into a circuit from which they could not [illegible] enticed so as to fall through our trap.

The only way to break out of the pattern was to sacrifice a life — bad enough, but as this occurred mainly at the higher levels it was sometimes your last life

We did manage to corrupt one of the sprites which make up the man and it made it very difficult to line him up on the ladders. I'm not sure how we did this but it did mean reloading the program and starting again

A joystick makes life easier but is not essential, as in many other games. Get rid of the bugs and value for money is much [illegible]proved.

B.P.

instructions	[illegible]
playability	20%
graphics	80%
value for money	30%

★ ★

Dodo
48K Spectrum
£5.95

Blaby Computer Games,
Crossways House, Lutterworth
Rd, Blaby, Leicester

This is a version of the arcade game Pengo, in which your character, transformed from a penguin to a dodo — presumably for copyright reasons — has to avoid a swarm of Snow Bees.

The playing area is a rectangular random maze of ice blocks. Both Dodo and the bees can destroy the blocks, but [illegible] can also push a single block which slides along the screen squashing any bees in its path. If any bee is touching an ice [illegible] which Dodo destroys, then the bee is also destroyed.

The cassette insert is amusing, the instructions are supplied on an extra piece of card and are clear and nicely presented, although containing a few grammatical errors

The game is fast and needs very quick reactions. Graphics, colour and sound are excellent, but movement is of the jerky, square to square variety

You have a choice of keyboard or Kempston/AGF joystick controllers, the keys are the "arrow" keys 5,6,7, and 8 and need some practice to master. Response is good, [illegible] you need the joystick to get really high scores.

R.E.

instructions	80%
playability	75%
graphics	80%
value for money	80%

★ ★ ★ ★

Space Hi-Way
BBC B
£8.56 (tape)
£9.70 (disc)

Amcom, 23 Hivings Hill,
Chesham, Bucks HP5 2PG

A healthy mixture of arcade ideas combine as you play the harassed owner of a galactic fuel station.

Armed only with your trusty doublesupersaturated-photonplasmalasertranscendentalblaster (!), which varies its power when low on charge, you must stop marauding gangs of four different types of aliens from stealing your fuel and destroying you in the process.

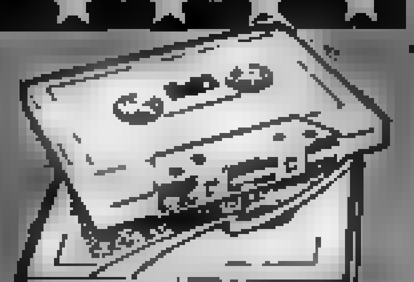
All very well, but passing fuel [illegible] be shot out of the sky — by carefully destroying their lifting pods and then catching them as they fall

All this, plus mutating aliens and the danger of running out of fuel, make Space Hi-Way a well balanced 'fun' game worthy of greatness. I enjoyed it thoroughly.

P.D.

instructions	80%
playability	90%
graphics	80%
value for money	80%

★ ★ ★ ★ ★



TORMENT
pinball + cubits
ARENA III

3 UNBEATABLE GAMES

ARENA III
[illegible]

PINBALL/CUBITS
[illegible]

CUBITS
[illegible]

TORMENT
[illegible]

LIZARD GAMES
14 Bridgwood,
Brookside,
TELFORD
Shropshire TF3 1LX

Designed for [illegible] Extended Basic TI 99/4A — Quantity

ARENA III	£7 95	☐
TORMENT	£7 95	☐
PINBALL + CUBITS	£5 95	☐

£ Total amount of cheque enclosed

Please add 20p for Post and Packing. Make cheques payable to Lizard Games. All tapes are despatched immediately.

Name ____________________

Address ____________________ HCW30

GALAXY

Number One For Texas

LOOK NEW LOW PRICES

Munchman	£24 50	Speech Editor	£16.80
Extended Basic	52.50	Editor/Assembler	58 00
Chess	28.40	Dragon Mix	20.80
Adventure/Pirate	20.80	Alien Addition	20 80
All Adventures	12.50	Mini Memory	52.50
Speech Synthesiser	42.95	Music Maker	24.50
Tunnels of Doom	20 80	Invaders	16.80
Terminal Emulator	42.20	Parsec	24.50

individual copies or by subscription

LANTERN CASSETTE SOFTWARE

Battlestar Attack	£9 95	Blasteroids	£9.95
Operation Moon	9.95	Character Generator	7 95
Scrolmaster	9.95	Ascot Stakes	7.95
Pearl Diver	5.95	Code Breaker	5 95
Daddies Hot Rod	5.95	Troll King	6.50

Large range of Books now available for TI99/4A

TEXAS CC40 COMPUTER £179.95

PLUS MANY MORE PROGRAMMES

(Dealer enquiries welcome)

Remember! There are no extra charges at Galaxy. All prices include VAT and postage. Send SAE for full list. Send cheque with order or phone or use Barclaycard or Access

NEW TI-USER a new publication with programs, reviews, competitions, news, advisory service £6.00 p.a

VISA

60 High Street, Maidstone Kent
Telephone: (0622) 682575 & 679265

COMPUSOUND

TELESOUND 84

"THE ONLY ONE OF ITS KIND TO FIT INSIDE THE SPECTRUM"

Probably the worlds smallest modulator!

TELESOUND 84 is ready built and tested to get full Spectrum sound through your unmodified television set, black/white or colour. The unit can be fitted in minutes without any previous experience. Telesound 84 has been developed using the very latest ultra miniature components so that the size is kept to an absolute minimum.

TELESOUND 84 FEATURES

- Sound and vision together for added realism
- Beep volume controllable from a whisper to a roar
- Keyboard prompt click clearly heard to assist program entry
- Programs can be heard with loaded
- Compatible with all other ZX add ons
- No soldering or case cutting required
- Additional amplifier not necessary
- Separate power supply not required

TELESOUND 84 comes with full fitting instructions and costs **£9.95** inclusive of post, packing etc. Please state your computer when ordering.

BARCLAYCARD VISA

ACCESS

COMPUSOUND dept HCW
32/33 Langley Close, Redditch,
Worcs B98 0ET
Tel(0527) 21429/21439

TI99/4A SOFTWARE

PILOT £5.95

A great new flight simulation game for the unexpanded TI99/4A. Graphics display of landing strip and terrain map, plus updated instrument panel. Options for take-off, landing or in flight. Full instructions included. Graphics and sound.

TI TREK £5.95

Defeat the Klingon invasion fleet. Features include 5 skill levels, graphics quadrant display, galaxy map, phasors, photon torpedoes, long range scans, damage reports, shield control, impulse and warp drive. Full 8x8 galaxy. Full instructions included

Send cheque or P.O. or telephone with Access/Visa for immediate despatch. Please add 50p p&p to orders under £7. Orders over £7 post free

APEX SOFTWARE
115, Crescent Drive South,
Brighton BN2 6SB
Tel: Brighton (0273) 36894

VISA

It's easy to complain about advertisements.

The Advertising Standards Authority.
If an advertisement is wrong, we're here to put it right.
ASA Ltd Brook House Torrington Place London WC1E 7HN

Can you play your cards right?

Pollish up your prowess at Pontoon with Michael Plows' program for any Spectrum

How it works

20 loads graphics
30-80 sets up initial values for variables
85-230 deals player's cards
[illegible] deals dealer's cards
285-295 decides who has won
300-360 end game titles
[illegible] subroutine to select a card at random and check if it has been used, then set suits and add value to total score
1100-2300 print subroutines for each card
2500-2530 card descriptions to read into pack array

Whether you're short of a partner to play cards with, or whether you just want to get some practice, my game is for you. It plays a standard game of pontoon, recognising pontoons and five card tricks.

Type in the BASIC program first and save on tape using SAVE "PONTOON" LINE 1

Then use a simple loader such as the one below to enter the graphics and save on tape after the program using SAVE "SET A" CODE USR "a", 168.

This is the loader:

```
10 FOR N=0 TO 20
20 FOR X=0 TO 7
30 INPUT Z: POKE 32600+
  (N*8)+X,Z
40 NEXT X: PRINT CHR$
  (144+N);''(one
  space)'';:NEXT N
50 STOP
```

The machine code for the graphics is listed separately.

Variables

P cash left
B amount bet on hand
T total score (ace = 1)
TT total score (ace = 11)
Y player's final score
F number of cards in hand
R,Q print position for card
U flag for dealer's five-card trick
X flag for dealer's pontoon
Z flag for player's five-card trick
P$ pack of cards
S$ suit symbol

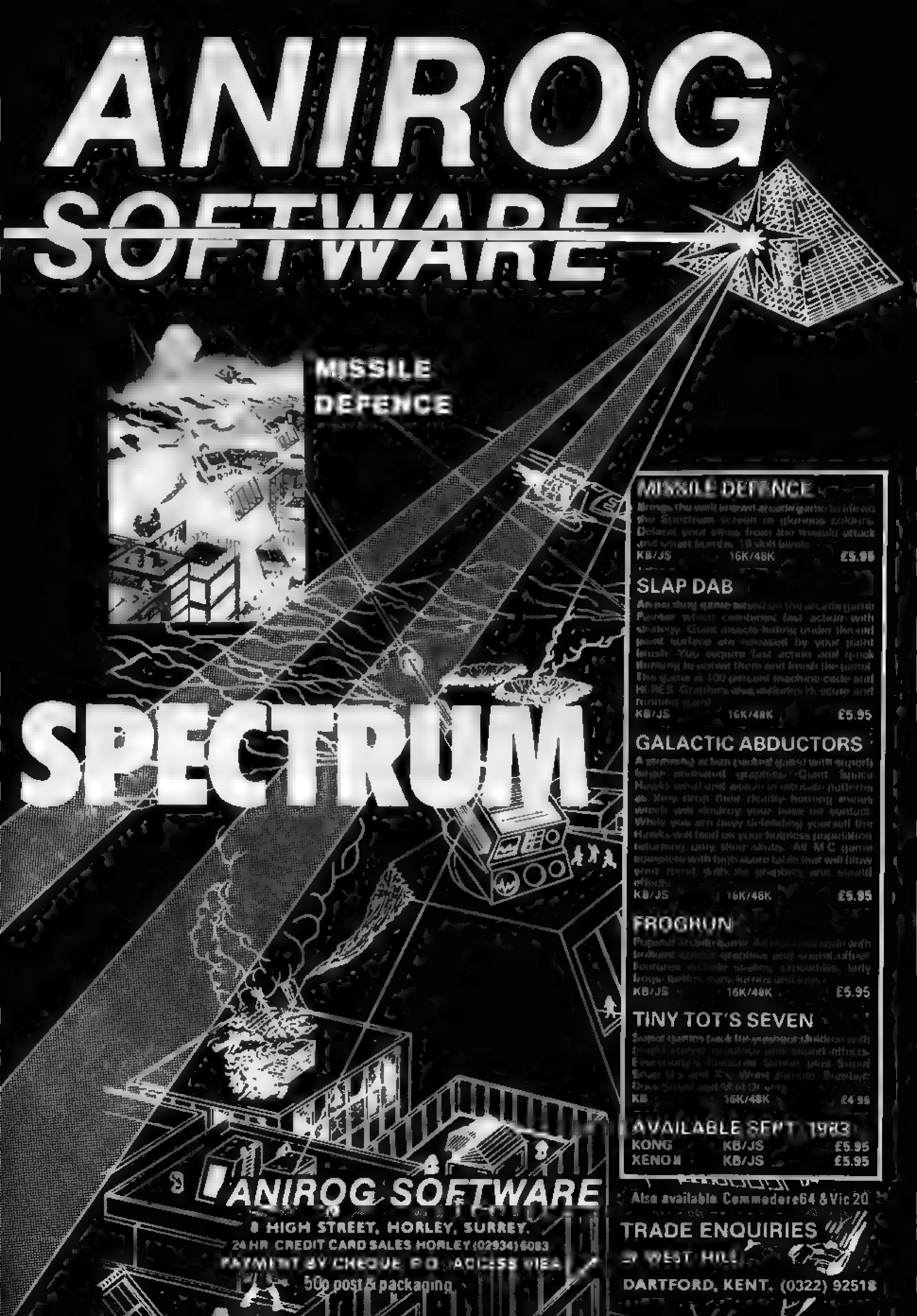
User defined graphics

A,B curves of chin
H,C,D,S suit symbols
E eye
M mouth
N nose
R beard
I,J,K,L diagonal half characters (queen's crown and king's beard)
P,Q,T,U diagonal quarter characters (not used)

```
   5 REM PONTOON
  10 RANDOMIZE
  20 LOAD "SET A"CODE USR "a",168
  25 GO TO 2600
  30 LET P=1000
  32 LET U=0: LET X=0: LET Z=0
  35 LET T=0: LET TT=0
  36 IF P<10 THEN GO TO 360
  40 BORDER 4: PAPER 4: CLS
  50 DIM P$(52,3): RESTORE 2500
  60 FOR I=1 TO 52: READ P$(I):
NEXT I
  80 LET A$="          ": LET B$="  "
  LET C$=" ": LET D$="      ": LET
 F=0: LET R=1
  85 GO SUB 400
  90 GO SUB (1000+(N*100))
  95 PAUSE 100
 100 PRINT ; PAPER 4; INK 0;AT 1
1,0;"YOU HAVE £ ";P: PAUSE 50
 120 PRINT ; PAPER 4; INK 0;AT 1
1,0;"HOW MUCH DO YOU WISH TO BET
?"
 130 INPUT B: IF B<10 THEN GO TO
 120
 140 IF B>P THEN PRINT ; PAPER 4
; INK 0;AT 11,0;"YOU ONLY HAVE £
";P;"              ": PAUSE 50: GO
TO 120
 150 GO SUB 400: GO SUB (1000+(N
*100))
 160 PRINT ; PAPER 4; INK 0;AT 1
1,0;"ANOTHER CARD?
": PAUSE 0
 170 IF IN 32766=247 THEN GO TO
200
 180 IF IN 57342=239 THEN GO TO
150
 190 GO TO 170
 200 PRINT PAPER 4;AT 11,0;"
             ": IF T>21 THEN GO TO 3
10
 205 IF TT=21 AND F=2 THEN LET X
=1
 206 IF F=5 THEN LET Z=1
 210 IF TT>T AND TT<22 THEN LET
Y=TT: GO TO 230
 220 LET Y=T
 230 LET R=12: LET F=0: LET T=0:
 LET TT=0
 240 GO SUB 400: GO SUB (1000+(N
*100))
 245 PAUSE 100:
 250 IF F<2 THEN GO TO 240
 260 IF T>21 THEN GO TO 300
 265 IF TT=21 AND F=2 THEN GO TO
 [illegible]
 266 IF F=5 AND T<22 THEN LET U=
1: GO TO 285
 270 IF TT>18 AND TT<22 THEN GO
TO 285
 280 IF TT<17 OR T<17 THEN GO TO
 240
 285 IF U=1 AND NOT X=1 THEN GO
TO 310
 286 IF Z=1 AND NOT U=1 THEN GO
TO 300
 287 IF X=1 THEN GO TO 300
 290 IF (T)=Y AND T<22) THEN GO
TO 310
 295 IF TT>=Y AND TT<22 THEN GO
TO 310
 300 PAPER 5: CLS : PRINT AT 10,
12;"YOU WIN". LET P=P+B: FOR N=0
 TO 30: BEEP .1,N: NEXT N: GO TO
 320
 310 PAPER 6. CLS : PRINT AT 10,
12;"YOU LOSE": [illegible] P=P-B: FOR N=
0 TO -30 STEP -1: BEEP .1,N: NEX
T N
 320 PAUSE 50: PAPER 5: CLS : PR
INT AT 10,12;"ANOTHER GAME?":
 330 IF IN 57342=239 THEN LET T=
0: LET TT=0: GO TO 32
 340 IF IN 32766=247 THEN CLS :
PRINT AT 10,6;"YOU HAVE £";P;AT
12,6;"thank you for the game": S
TOP
 350 GO TO 330
 360 CLS : PRINT '"YOU HAVE LESS
 THAN £10 LEFT"'" AND ARE OUT OF
 THE GAME, SORRY": PRINT AT 10,1
0;"ENTER GOTO 30 ";AT 12,10;"FOR
 A NEW GAME": STOP
 400 LET A=INT (RND*52)+1
 410 IF P$(A)="000" THEN GO TO 4
[illegible]
 420 LET O$=P$(A): LET P$(A)="00
0"
 430 IF O$(3)="H" THEN LET S$="H
": INK 2
 440 IF O$(3)="C" THEN LET S$="C
": INK 0
 450 IF O$(3)="D" THEN LET S$="D
": INK 2
 460 IF O$(3)="S" THEN LET S$="S
": I[illegible] 0
 465 LET E$=B$+S$+B$: LET F$=C$+
S$+C$+S$+C$
 470 LET N=VAL O$(1 TO 2)
 [illegible] IF N=1 THEN LET S=1: LET SS
=11: GO TO 530
 510 IF N>9 THEN LET S=10: LET S
S=S: GO TO 530
 520 LET S=N: LET SS=S
 530 LET T=T+S: LET TT=TT+SS
 540 RETURN
1100 LET O=2+([illegible]F): PAPER 7
1110 PRINT AT R,0;"A";D$;AT R+1,
0;A$;AT R+2,0;A$;AT R+3,0;A$;AT
R+4,0;E$,AT R+5,0;A$;AT R+6,0;A$
,AT R+7,0;A$;AT R+8,0;D$;"A"
1115 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1120 LET F=F+1: RETURN
1200 LET O=2+(6*F): PAPER 7
1210 PRINT AT R,0;"2",D$;AT R+1,
0,A$;AT R+2,0;E$;AT R+3,0;A$;AT
R+4,0;A$;AT R+5,0;E$;AT R+6,0;A$
;AT R+7,0;A$;AT R+8,0;D$;"2"
1215 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1220 LET F=F+1: RETURN
1300 LET O=2+(6*F): PAPER 7
1310 PRINT AT R,0;"3";D$,AT R+1,
0;E$;AT R+2,0;A$,AT R+3,0;A$;AT
R+4,0,E$;AT R+5,0;A$;AT R+6,0,A$
,AT R+7,0,E$;AT R+8,0;D$;"3"
1315 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1320 LET F=F+1: RETURN
1400 LET O=2+(6*F): PAPER 7
1410 PRINT AT R,0;"4",D$;AT R+1,
0;A$;AT R+2,0;F$;AT R+3,0;A$,AT
R+4,0;A$;AT R+5,0;A$;AT R+6,0;F$
;AT R+7,0;[illegible]$;AT R+8,0;D$;"4"
1415 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1420 LET F=F+1: RETURN
1500 LET O=2+(6*F): PAPER 7
1510 PRINT AT R,0;"5",D$;AT R+1,
0,A$;AT R+2,0;F$;AT R+3,0;A$;AT
R+4,0;E$;AT R+5,0;A$;AT R+5,0;A$
,AT R+6,0,F$,AT R+7,0;A$;AT R+8,
0;D$;"5"
1515 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1520 LET F=F+1: RETURN
1600 LET O=2+(6*F): PAPER 7
1610 PRINT AT R,0;"6";D$;AT R+1,
0;A$;AT R+2,0;F$;AT R+3,0;A$;AT
R+4,0;F$;AT R+5,0;A$,AT R+6,0;F$
,AT R+7,0,A$;AT R+8,0;D$;"6"
1615 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1620 LET F=F+1: RETURN
1700 LET O=2+(6*F): PAPER 7
1710 PRINT AT R,0;"7";D$;AT R+1,
0;A$;AT R+2,0;F$;AT R+3,0;E$;AT
R+4,0;F$;AT R+5,0;A$,AT R+6,0;F$
,AT R+7,0;A$;AT R+8,0;D$;"7"
1715 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1720 LET F=F+1: RETURN
1800 LET O=2+(6*F): PAPER 7: PRI
NT AT R,0;"8";D$;AT R+1,0;F$;AT
R+2,0,A$,AT R+3,0;F$;AT R+4,0,A$
,AT R+5,0,F$;AT R+6,0;A$;AT R+7,
0,F$;AT R+8,0;D$;"8"
1815 PLOT (O*8)-1,175-((R*8)-1).
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
1820 LET F=F+1: RETURN

1900 LET O=2+(6*F): PAPER 7
1910 PRINT AT R,0;"9";D$;AT R+1,
0;F$;AT R+2,0;E$,AT R+3,0;F$;AT
R+4,0;A$;AT R+5,0;F$;AT R+6,0;A$
,AT R+7,0;F$;AT R+8,0;D$;"9"
1915 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0, DRAW 0,74
1920 LET F=F+1: RETURN
2000 LET O=2+(6*F): PAPER 7
2010 PRINT AT R,0,"10    ";AT R+1
,0;F$;AT R+2,0;E$;AT R+3,0;F$;AT
 R+4,0;A$;AT R+5,0;F$;AT R+6,0;E
$;AT R+7,0;F$;AT R+8,0;"    10"
2015 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
2020 LET F=F+1: RETURN
2100 LET O=2+(6*F): PAPER 7
2110 PRINT AT R,0;"J";D$;AT R+1,
0;S$+D$,AT R+2,0;"[illegible]";AT R+3,
0;" E E ";AT R+4,0;" N ";AT R+
5,0;" AMB ";AT R+6,0;"  R  ";AT
R+7,0;D$+S$;AT R+8,0;D$;"J"
2115 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
2120 LET F=F+1: RETURN
2200 LET O=2+(6*F): PAPER 7
2210 PRINT AT R,0;"Q";D$;AT R+1,
0;S$+D$,AT R+2,0;"UI[illegible]KP",AT R+3,
0;" E E ";AT R+4,0;" N ";AT R+
5,0;" AMB ";AT R+6,0,A$;AT R+7,0
,D$+S$;AT R+8,0;D$;"Q"
2215 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
2220 LET F=F+1: RETURN
2300 LET O=2+(6*F): PAPER 7
2310 PRINT AT R,0;"K";D$;AT R+1,
0;S$;" O  ";AT R+2,0;"[illegible]";AT
R+3,0;" E E ";AT R+4,0;" N ";A
T R+5,0;" IMK ";HT R+6,0;"  R  "
;AT R+7,0;D$;S$;AT R+8,0;D$;"K"
2315 PLOT (O*8)-1,175-((R*8)-1):
 DRAW 42,0: DRAW 0,-74: DRAW -42
,0: DRAW 0,74
2320 LET F=F+1: RETURN
2500 DATA "01H","02H","03H","04H
","05H","06H","07H","08H","09H",
"10H","11H","12H","13H"
2510 DATA "01C","02C","03C","04C
","05C","06C","07C","08C","09C",
"10C","11C","12C","13C"
2520 DATA "01D","02D","03D","04D
","05D","06D","07D","08D","09D",
"10D","11D","12D","13D"
2530 DATA "01S","02S","03S","04S
","05S","06S","07S","08S","09S",
"10S","11S","12S","13S"
2600 BORDER 4: PAPER 4: CLS : BE
EP 1,20: PRINT AT 3,12;"PONTOON"
,AT 6,3,"YOU START WITH £1000 AN
D MUST BET AT LEAST £10 ON EACH
GAME";AT 10,10;"GOOD LUCK";AT 17
,1,"PRESS ANY KEY TO START"
2610 IF INKEY$="" THEN GO TO 261
0
2620 GO TO 30
```

Machine code for the graphics. Do not type in the five-figure numbers on the left. Press ENTER after keying in each number, working from left to right

```
32600   128   128   64    64    32
32605   16    12    2     1     1
32610   2     2     4     8     48
32615   192   56    56    16    214
32620   254   214   16    16    0
32625   16    56    124   254   124
32630   56    16    0     0     60
32635   90    60    0     0     0
32640   3     12    16    32    64
32645   64    128   128   192   48
32650   8     4     2     2     1
32655   1     102   255   255   126
32660   126   60    60    24    128
32665   192   224   240   248   252
32670   254   255   255   127   63
32675   31    15    7     3     1
32680   1     3     7     15    31
32685   63    127   255   255   254
32690   252   248   240   224   192
32695   128   0     0     0     40
32700   124   56    0     0     0
32705   40    40    40    56    56
32710   0     0     0     48    72
32715   72    48    0     0     0
32720   0     0     0     0     120
32725   192   224   240   15    7
32730   3     1     0     0     0
32735   0     255   126   60    24
32740   0     0     0     0     16
32745   56    124   254   254   214
32750   146   16    240   224   192
32755   128   0     0     0     0
32760   0     0     0     0     1
32765   3     7     15    0     0
32770   0     0     0     0     0
```



ANIROG SOFTWARE

SPECTRUM

MISSILE DEFENCE

Brings the well known arcade game to life on the Spectrum screen in glorious colours. Defend your cities from the missile attack and smart bombs. 10 skill levels.

KB/JS 16K/48K £5.95

SLAP DAB

An exciting game based on the arcade game Painter which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the panel. The game is 100 percent machine code and HI-RES. Graphics also includes hi-score and running panel.

KB/JS 16K/48K £5.95

GALACTIC ABDUCTORS

A stunning action packed game with superb large animated graphics. Giant Space Hawks wheel and swoop in intricate patterns as they drop their deadly homing mines which will destroy your base on contact. While you are busy defending yourself the Hawks will land on your helpless population [illegible]. All M.C. game complete with high score table that will blow your mind with the graphics and sound effects.

KB/JS 16K/48K £5.95

FROGRUN

Popular arcade game. All machine code with brilliant colour graphics and sound effects. Features include snakes, crocodiles, lady frogs, turtles, cars, lorries and logs.

KB/JS 16K/48K £5.95

TINY TOT'S SEVEN

Super games pack for younger children with bright colour graphics with sound effects. Everybody's favourite Simon plus [illegible] [illegible] and [illegible]

KB 16K/48K £4.95

AVAILABLE SEPT. 1983

KONG KB/JS £5.95
XENON II KB/JS £5.95

Also available. Commodore64 & Vic 20.

ANIROG SOFTWARE

8 HIGH STREET, HORLEY, SURREY.
24 HR CREDIT CARD SALES HORLEY (02934) 6083
PAYMENT BY CHEQUE, P.O., ACCESS VISA
50p post & packaging

TRADE ENQUIRIES
29 WEST HILL
DARTFORD, KENT. (0322) 92518

Make your printer do some useful work

Here's how to produce cassette inserts and neat-looking letters. Alan Blackham's programs run on the unexpanded VIC-20 with the 1515 printer

Mini Word Pro

You are asked for information about the person you are writing to, as the program prompts you.

When you press the up arrow to enter the letter you are told to get the printer ready and when you press return the letter is printed with your address at the top.

Put your address and phone number in lines 550-570.

Variables

N$	name
S$	street and number
T$	town
C$	city
A$	GETs
P$	post code
L%(1 to 500)	the letter
X	counter
I	FOR loop

Hints on conversion

POKE 36879,8 sets the screen black
PRINT CHR$(14) puts micro into lower case
PRINT CHR$(8) stops switching between upper and lower case
POKE 198,0 clears keyboard buffer
POKE 204,0 flashes the cursor in a GET statement
OPEN 1,4 open the printer as a device
CMD 1 sends all output to the printer
SYS 64802 resets the computer

```
 1 REM    ##################
 2 REM    # ALAN BLACKHAM'S #
 3 REM    # MINI:WORD PRO   #
 4 REM    #                 #
 6 REM    ##################
 9 REM
 10 POKE 36879,8 PRINTCHR$(14)·PRINTCHR$(8)
 12 PRINT CHR$(8)
 20 PRINT"█                          ",
 22 PRINT"█ █                    █ ";
 24 PRINT"█ █  \\/\'OΓ_▔-⅂_Γ(-)   █ ",
 26 PRINT"█ █  IY @LAN ILACKHAM   █ ";
 28 PRINT"█ █     (05/07/83)       █ ";
 30 PRINT"█ █                      █ ";
 35 PRINT"█                       █",
 36 REM
 37 REM #### INPUT INFORMATION ####
 38 REM
 40 PRINT"███OHO IS THE LETTER TO"
 45 INPUT N$·IF N$=""THEN 45
 50 PRINT"███OHAT'S THE   NUMBER   ANT STREET"
 55 INPUT S$·IFS$=""THEN55
 60 PRINT"███OHAT IS THE.   TOWN"
 65 INPUT T$ IFT$=""THEN65
 70 PRINT"███OHAT IS THE   CITY"
 75 INPUT C$ IFC$=""THEN75
 80 PRINT"███⅂O YOU KNOW THE   POST CODE▲ (| OR /)
?"·POKE198,0
 85 GETA$ IF A$=""THEN 85
 90 IF A$="N"THEN 100
 92 IF A$<>"Y"THEN 85
 95 PRINT"███OHAT IS THE.  POST    CODE."
 97 INPUT P$·IFP$=""THEN97
 100 REM
 102 REM #### INSTRUCTIONS ####
 105 REM
 110 PRINT"███                         ",
 112 PRINT"█ █     \\/\ OΓ_▔-⅂_Γ    █ ",
 115 PRINT"██                     █"
 120 PRINT"█ΓNTER YOUR LETTER"
 122 PRINT"█USING THE FOLLOWING"
 125 PRINT"█FUNCTIONS "
 130 PRINT"█L⅂ /_/ = /EW LINE"
 135 PRINT"█     ← = /EW PARAGRAPH"
 140 PRINT "     ↑ = ⅂ND LETTER"
 145 PRINT "█    F1 = @TART AGAIN."
 150 PRINT"███    ⅂RESS @NY /EY     █":POKE198,0
155GETA$ IFA$=""THEN155
200 REM
202 REM #### INISIALISE ####
205 REM
210 DIM L%(500)
300 REM
302 REM #### ENTER LETTER ####
305 REM
310 PRINT"██   ⅂NTER LETTER."
315 PRINT"█_________________________█"
320 POKE 198,0 X=0
330 POKE 204,0 GETA$ IFA$=""THEN330
335 POKE 204,1
340 IF A$="←" THEN PRINT PRINT"   ", GOTO 330
345 IF A$="↑" THEN 500
350 IF A$=CHR$(133)THEN RUN
355 IF A$=CHR$(20) THEN X=X-1 PRINTA$, GOTO 330
357 IF A$=CHR$(13)THEN PRINT" ",
360 X=X+1·L%(X)=ASC(A$)
370 PRINTA$, GOTO 330
500 REM
502 REM #### PRINT LETTER ####
505 REM
510 PRINT"███ET THE PRINTER READY THEN PRESS █⅂
| /_/."
520 INPUT A$
530 PRINT"████    ⅂RINTING LETTER!"
540 PRINT"██    ⅂LEASE WAIT!"
545 OPEN 1,4,7·CMD1
550 PRINT TAB(60),"                 ,"
555 PRINT TAB(61);"              ,"
560 PRINT TAB(62);"              ,"
565 PRINT TAB(63);"          "
570 PRINT TAB(60);"                 "
575 PRINT
580 PRINT N$","
585 PRINT S$","
590 PRINT T$","
595 PRINT C$"."
600 IF P$<>""THEN PRINTP$"."
610 PRINT
620 PRINT"⅂EAR "N$","
630 PRINT"    ";
640 FOR I=1 TO X
645 IF CHR$(L%(I))="←"THEN PRINT·PRINT"    ";:GOTO
655
647 IF L%(I)=13 THEN PRINT GOTO 655
650 PRINT CHR$(L%(I)),
655 FORR=1TO10 NEXTR,I
660 PRINT PRINT
665 PRINT TAB(50)"YOURS FAITHFULLY,"
```

▶

```
670 PRINT·PRINT'PRINT
680 PRINT TAB(55)"■LAN ■LACKHAM."
682 PRINT#1:CLOSE1
685 PRINT"■■■■ ■RESS SPACE TO STOP!":POKE198,0
687 OPEN 1,4
690 PRINT#1'PRINT#1
695 GETA$'IFA$<>" "THEN 690
697 CLOSE 1
710 PRINT"■■■■■NOTHER LETTER(■ OR ■)":POKE 198,0
720 GETA$:IFA$=""THEN720
730 IF A$="Y"THEN RUN
735 PRINT"■■■■.■."
740 SYS 64802
```

Cassette Inserts

This program for the unexpanded VIC-20 with a VIC 1515 Printer allows you to make cassette inserts on your printer for your music tapes or program cassettes

The program starts by asking you to enter all the titles of what is on the tape. When you have entered them all you enter 'OK' and you are then told to get the printer ready and then press RETURN. Then the insert is printed with a line around it which, when cut out, fits the cassette perfectly.

Hints on conversion

This program should work on any micro with a printer with minor alterations. The main things are:

POKE 36879,8 sets the screen to black

OPEN 1,4:CMD 1 sets all prints to the printer

CLOSE 1 switches off the printer

POKE 36879,27 sets the screen to white with cyan border

Variables

T$ titles of what's on the tape
X counter
A$ input
I FOR loop
P position to print right side of box

```
1 REM ####################
2 REM # ALAN BLACKHAM'S #
■ REM # CASSETTE INSERTS#
■ REM #                 #
■ REM ####################
7 REM
10 POKE 36879,8
20 PRINT"■■    CASSETTE INSERT"
25 PRINT"■    ________________"
30 PRINT"■■ENTER ALL THE PROGRAMSON THE CASSETTE."
35 PRINT"■■TYPE 'OK' WHEN ALL     TITLES ARE ENTERE
D."
37 PRINT"■■PRESS 'RETURN' AFTER  EACH TITLE!"
40 DIM T$(15)'X=0
50 REM ** ENTER DATA **
60 X=X+1'INPUT"■■";T$(X)
65 IF T$(X)="OK"THEN 100
67 IF X=14 THEN PRINT"■■NO ROOM FOR ANY MORE!■"
70 GOTO 60
100 REM
102 REM **** PRINT INSERT ****
105 REM
110 PRINT"■■■■GET THE PRINTER READY THEN PRESS ■'
RETURN'."
115 INPUT"■",A$
120 PRINT"■■■■     PLEASE WAIT!"
130 OPEN 1,4 CMD1 REM ** PRINTER **
135 PRINT"-----------------------------------------
--------"
140 FOR I=1 TO X-1
150 PRINT"| ";T$(I);
160 P=46-LEN(T$(I))
165 PRINT TAB(P),"|"
170 NEXT I
172 FOR I=X TO 18
175 PRINT"|
      |":NEXT
178 PRINT"-----------------------------------------
--------"
180 PRINT#1 CLOSE1 REM ** PRINTER **
200 REM
202 REM **** END PROGRAM ****
205 REM
210 PRINT"■■  CASSETTE INSERTS"
215 PRINT"■  _________________"
220 PRINT"■■■DO YOU WANT TO DO      ANOTHER ONE(Y O
R N)?"
230 POKE 198,0
240 GETA$:IFA$<>"Y"ANDA$<>"N"THEN 240
250 IFA$="Y"THEN RUN
260 POKE 36879,27
270 PRINT"■■O.K."
280 END
```

CALIFORNIA GOLD RUSH

HOWDEE PARDNERS

THIS here's Prospector Jake, I sure am havin' one helluva time tryin' to peg my claim with them Injuns a hoot-in' and a hollerin' all over this here territory.

Can YOU help Jake peg his claim, dodge the arrows, avoid the tomahawks, n' plant his Dynamite ? ∴ You CAN!!

YIPPEE . . . You need all your skill &

CALIFORNIA GOLD RUSH . . . NOW

for COM 64, Spectrum 48, & Dragon

Amazing Arcade Action for £7.95 incl.

SPECIAL OFFER: Order California Gold Rush NOW and get a 10 game cassette ABSOLUTELY FREE

ANiK

30 KINGSCROFT COURT
BELLINGE, NORTHAMPTON

TICK BOX FOR YOUR REQUIREMENTS
COM 64 ☐ SPECTRUM 48 ☐ DRAGON 32 ☐
NAME
ADDRESS
TOTAL SUM ENCLOSED

HCW30

ZX SPECTRUM & ZX81
EDUCATIONAL SOFTWARE

Spectrum Junior Education £7.50

Use your Spectrum to help your children with their school work. This cassette contains eight attractive, easy-to-use programs for the 7 to 11 age group.

- Topics include English comprehension, spellings, homophones, junior science, maths and history.
- Entering your own questions and answers allows you to adapt two of these programs for exercises in any subject area.
- Moving colour graphics and sound are extensively used to improve motivation.
- Use the "draw" program to produce pictures, maps and diagrams.

Suitable for the 16K or 48K Spectrum. Program notes are supplied

Overseas orders. £8.50

O-Level Chemistry (C1) £5.50

This cassette contains four clearly presented revision/tutorial programs. The subject matter has been carefully structured to cover the most important aspects of

- Elements, compounds and mixtures
- Structure, bonding and properties.
- Redox, electrolysis and the activity series.
- Acids, bases and salts

48K Spectrum and 16K ZX81 versions of the cassette are available Please specify which you require

Overseas orders: £6 50 ($11.80) per cassette; includes AIRMAIL postage.

Professional Computer Assisted Learning materials from:

CALPAC COMPUTER SOFTWARE
108 Hermitage Woods Crescent, St Jonns,
Woking, Surrey GU21 1UF.

DRAGON/ATOM/ORIC-1
ADD LOW-COST I/O POWER WITH A VIA BOARD

Drive extra I/O devices, from LEDs & switches to extra peripherals. Link 2 micros for data/program transfer, spool listings to a second micro to print/save etc. (see TEVLINK below).

HARDWARE: 6522 VIA provides 16 I/O lines + control, serial port, 2 timers, interrupt register I/O, voltage & interrupt lines taken to 26-way IDC plug for easy connection to peripherals etc. Connectors available for Dragon and Atom. The Board may be interfaced to most other 6502/6809 micros, and may be shared between m/c's by changing the plug-in connector.

SOFTWARE: 'TEVLINK' package provides 2-machine parallel link (2 Boards needed, overall speed about 8K DATA bytes/second with error checking. A PRINT SPOOLER is included (only 1 Board needed): connect printer port to VIA board on receiving micro and use normal LIST/PRINT etc.

Dragon/Atom cassette	£7 75
Assembled baord + Atom connector	£18.75
Assembled board + Dragon connector	£18.75
Dragon 14K EPROM Board: takes 3 × 4K and 1 × 2K EPROMs.	
Specify 25 or 27 series. Assembled Board	£15.00

PROFESSIONAL QUALITY DRAGON SOFTWARE:

TML DATABASE: A flexible, general-purpose data filing and retrieval program, with an "Auto-Reminder" feature for birthdays, appointments etc, plus a powerful search facility. M/code program £9.75

ORIC ADVENTURE: Tevrog's Kingdom is a real-time text adventure for the 48K Oric. It features spells, clues and problems, as well as enemies and allies – can you steal King Tevrog's Talisman before he returns? Although no two games are the same, the distribution of items around the layout is logical rather than totally random, giving a game which retains its interest even after you have succeeded several times. Excellent value for money.

Cassette [illegible]

* *Other software and hardware available soon* *

MAIL ORDER ONLY. SEND FOR LISTS/DETAILS

All prices fully inclusive of VAT, p&p etc.

TμT

Tevward Microtech Ltd.
(Dept. ECM), 403 Dallow Rd., Luton LU1 1UL
(Telephone: (0582) 418906

HCW30

YAHTCEE....This traditional dice is for one or more players and features superb graphics to enhance your enjoyment.

YAHTCEE is Fascinating, Absorbing & Challenging.

SPECIAL OFFER

Order YAHTCEE Today for only
£7.95 incl and get a ten game
cassette FREE

ANiK

30 KINGSCROFT COURT,
BELLINGE, NORTHAMPTON

TICK BOX FOR YOUR REQUIREMENT.
COMMODORE/SPECTRUM/DRAGON/ORIC
YAHTCEE
NAME
ADDRESS
TOTAL SUM ENCLOSED
HCW10

Please mention

Home Computing WEEKLY

when replying to all Adverts

Send your letter to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Don't forget to name your computer — the best letter could win £5-worth of software. Queries cannot be answered on this page

Jetting ahead

I have found a way to achieve a limitless score in Jet Pac by Ultimate Play The Game In the fourth screen (where the planes attack you) you fly up and position yourself in the centre of the top right mooncloud.

This way none of the jets can reach you so you cannot be killed In this screen you receive the points for any alien that crashes or blows up so by just leaving the program running the six digits in the top left can change continously while you can do whatever you want

Using this technique I have achieved a score of 700,000 while normally I only get about 70,000.

In Planetoids, by Psion, there is also a way of getting a high score What you do is position your ship in the left column of the screen where it will turn half yellow Any planetoid that goes over it will just clear that area of your ship By turning you will be able to see it again

I have gained scores of over 300 000 using this method, but it gets boring after a while

Marcus Edwards
Bishop's Stortford, Herts

Quirks among the monsters

I have found a bug/quirk in Softek's Monsters In Hell (reviewed in HCW20) My top score is 5,624 kills and this was achieved in just under four hours by hammering away at all levels under where the monsters appear

When they appear they will fall down all the levels and die You only have to collect crosses This, however, is not as simple as it seems. All action stops when a monster falls past the levels, taking about a second This seems odd as no sound accompanies the fall

I failed to see any demons after 65 kills (unless they were a different coloured Mad Monk shape as I was using a black and white Television at the time)

My holy power began to overwrite the "L" and then the "I" in "Lives" Once my Holy Power reached over 3,2767, it was made negative and each successive cross made it 100 nearer zero As I was interested in what would happen when my power became nearer zero I carried on I got it down to 263, picked up another cross and it stopped and asked me if I wanted another game?

This surprised me as I didn't know why the game had ended If I had left by power to run out I should have made at least another few thousand kills This was a good idea for a game but if the monsters always appeared at the same place, why didn't anyone at Softek think of doing what I did?

All that would be needed would be an essential ladder at the left hand side which, if my idea was used, would isolate the man on the lower floors and eventually making the crosses unreachable

If software companies took as much care checking programs as they did promoting them, then the standard of programs on the market may be a little higher

Rose Harris
Dunshalt, Cupar, Fife

Frank Lech, sales and marketing director of Softek International, said "We welcome feedback from customers — the more we get the happier we are We really do appreciate public comment

"Along with Firebirds, Monster in Hell is our best seller and Mr Harris' comments are the first of this nature that we have had

"It may be that improvements can be incorporated but it is also possible that there is a technical fault If he sends us the tape we will see if we come up with the same

"We will put his comments to the programmer

"It's very nice to hear of someone who has obviously thought about his criticism and put it into such cohesive form "

Guitar tutor revisited

Thank you for reviewing my program Learn to Play Guitar in a recent issue

Obviously, I am rather disappointed at the two star rating you gave it However, I take heart from your comment that the section displaying chord patterns is an 'excellent reference'

Further comments are:

1. The title of the program. I never intended this program to be sold as a complete guitar tutor to rival some of the excellent publicatioons on the market

Rather, it was my intention that the program would provide a useful reference for aspiring musicians

I was not consulted by Lasersound about the title nor the artwork for the cassette insert, I accepted that the program will not teach classical guitar — it was never intended to

2. On-screen instructions. I agree that a lack of instructions in a program of this type is unforgiveable. When I sent the original program to Lasersound, they suggested a few alterations/ improvements which I could not incorporate within 16K without cutting out some feature

The feature which had to be cut was the On-Screen instructions. I assumed that Lasersound would provide these instructions in printed form to complement the very basic on-screen instructions

Obviously, I was wrong I have written an instruction sheet and asked Lasersound to supply this with future copies of the program and to make it available to any existing customer who requests it

3. The table which your reviewer could not understand If playing the guitar by ear, you would soon notice that certain chords seem to occur together

For instance, with a song in the key of 'G', other chords which will probably be used are 'C', 'D7' and 'Em' These are known as the sub-dominate, dominate and relative minor

If you have worked out the chords used in a particular tune, but the key is not suitable for your voice, you can transpose the tune into a suitable key by referring to this table which provides the dominant subdominant and relative minor for any key

4. Tuning up I agree that if you read the Spectrum manual you would be able to make the computer do this without the need to buy a ready made program, but then if you read the manual and play around with the computer for long enough, it is surprising what you can make it do

5. LOADing problems If the second part of the program refuses to load, try LOAD "part 2" (16k) or MERGE "part 2" (48K) If this is still unsuccessful, contact Lasersound

I hope that this letter sets the record straight

J. Douglas Barr, Paisley, Scotland

Top Ten programs for the ZX81

1	Chess	Sinclair (1)
2	Space Raiders	Sinclair (2)
3	Flight Simulation	Sinclair (4)
4	Football Manager	Addictive Games (6)
5	Fantasy Games	Sinclair (5)
6	Scramble	Quicksilva (–)
7	Asteroids	Quicksilva (9)
8	Espionage Island	Sinclair (3)
9	Defender	Quicksilva (7)
10	Ship of Doom	Sinclair (–)

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the VIC-20

1	Arcadia	Imagine (1)
2	Wacky Waiters	Imagine (3)
3	Skyhawk	Quicksilva (2)
4	Cosmiads	Bug Byte (8)
5	Catcha Snatcha	Imagine (9)
6	Cosmic Crunch	Commodore (4)
7	Gridrunner	Llamasoft (5)
8	Sargon II Chess (cart.)	Commodore (7)
9	Frantic	Imagine (10)
10	Panic	Bug Byte (6)

Compiled by W. H. Smith. Figures in brackets are last week's positions

Top Ten programs for the Spectrum

1	Jet Pac	Ultimate (3)
2	Tranz-Am	Ultimate (1)
[illegible]	Scrabble	Psion (4)
4	The Hobbit	Melbourne House (2)
5	Horace and the Spiders	Psion/M. House (8)
6	Flight Simulation	Psion (5)
7	Ah Diddums	Imagine (9)
[illegible]	3D Tanx	dk'tronics (7)
9	Chess	Psion (–)
10	Cookie	Ultimate (–)

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the Dragon

1	The King	Microdeal (1)
2	Frogger	Microdeal (2)
3	Android Attack	Microdeal (3)
4	Space War	Microdeal (6)
5	Nightflight	Salamander (4)
6	Ring of Darkness	Wintersoft (8)
7	Planet Invasion	Microdeal (10)
8	Quest	Dragon (–)
9	Morocco Grand Prix	Microdeal (7)
10	Dragon Trek	Wintersoft (–)

Compiled by Boots. Figures in brackets are last week's positions

How to hit out at your hardware

Aggravated at your computer? If you haven't you will be.

Well, aggravated users and programmers of the world, it is now time to fight back. Microfile Systems Corporation has come up with a little device called the Byte Bat

This truly user friendly device is a piece of soft hardware (or hard software depending on your point of view) that will give you a satisfying but non-destructive way to get back at your computer.

The Byte Bat is made of foam rubber, is 17 inches long, and is shaped like an American Baseball bat For a mere $9.95, you get the Bat itself, a user's manual, a Byte Bat badge, a poster showing how to use the Bat, and a decal that warns all who approach that "this computer-friendly liveware is protected by Byte Bat."

Its inventors hope that the device will be another monster seller similar to the Pet Rock. Already the firm has sold out its test run of 10,000.

Believe it or not, this device was designed by a former Texas Instruments engineer who fashioned the prototype out of packing foam. It became an instant success, put into use by numerous TI CAD engineers who took it out on their terminals when their programs crashed.

Four years of testing and product improvement went into the Byte Bat before it was released commercially. How can it fail to sell?

It is made of open-cell foam without a skin. Therefore it is so soft that it will not even get a key to depress on the average keyboard. If it did have a skin, it could possibly cause damage to disc drives or punch out the lights of an LED, for example.

A health and safety warning comes with the Bat, indicating that computer users under three years of age should be watched, so that they do not eat the Bat.

The Byte Bat is compatible, as far as I can tell, with all computers and systems, making it the first globally compatible piece of spongeware (foamware?), in concurrence with statements made by the manufacturer.

If your local dealer only carries computers and software that never create errors, you won't need one. Otherwise you can get one direct from the factory by sending Microfile $12.50 or ordering by phone.

Not having current address, the best I can do is provide you their toll-free phone in the U.S. Call the U.S. and then ask for (800) 227-3900. Or if you are out my way, in California you can call (800) 632-2122. Waddaya mean, it's the silly season? It's like this all the time out here.

* * *

If you like doing graphics on your Tandy Model III, this program may interest you. It is called DRAW, and is a text and graphics editing package that allows you to design a graphics screen or draw a picture in conjunction with your computer and the Grafyx Solution board (both hardware and software are from the same vendor).

The program contains about 10,000 instructions and is written in assembly. By moving the cursor around the screen and entering simple one-letter command instructions, you can do a variety of graphics tasks using lines, points, boxes, or circles.

It is a very versatile system which allows you to alter point size, reverse images, move any section of the screen to any other section, delete sections, and save any or all of your work at any time.

Once you are satisfied, or must leave off for a while, you can either save you work to disc or tape or have it print out in hard copy on any one of 20 commonly used printers The program comes with 12 high resolution graphics pictures and costs only $39.95

I do not know what the necessary piece of hardware costs, but you can find out for yourself by writing or calling Micro-Labs, Inc, 902 Pinecrest, Richardson, Texas 75080, (214) 235-0915.

That's all for this week. See you next time.

Bod Izen
Fairfield, California

FIREHAWKS
Take off
with Postern

Another devastating new game from the fabulous Postern range.

Defeat the flock of marauding FIRE HAWKS.

Escape from the SNAKE PIT.

Ride the mighty SHADOWFAX.

Prepare to repel the enemy in SIEGE.

Defend our planet from destruction in 3 DEEP SPACE.

The colourful Postern range is available on a variety of micros. Write quantity of each game required in the boxes provided.

HCW10 PC

Please send me:		Spectrum	C64/Vic 20	BBC 'B'
Fire Hawks	£6.95			☐
Snake Pit	£6.95	☐	☐	☐
Shadowfax	£6.95	☐	☐	☐
Siege	£6.95	☐	☐	☐
3 Deep Space	£7.95	☐	☐	☐

Total £ ________ or Access No ________
Name ________
Address ________

POSTERN

POST TO: **Postern Ltd.**, P.O. Box 2, Andoversford, Cheltenham, Glos GL54 5SW.
OR PHONE: Northleach **(04516) 666** Telex 43269 Prestel 37745
Postern is always on the look out for any new games you might have developed.

Trapped! And there are things which don't want you to escape

These are the first two parts of a four-part adventure written for the VIC-20, plus 3K of RAM by Alan Blackham. Part two will appear next week and the final part the week after. But you can start playing straight away . . .

Variables

A$ all gets
I counter in for loops
A data

Hints on conversion

Part one would be very hard to convert to another micro because it uses user defined graphics. But the game will work just as well without part one, anyway.

Part 1

It is Halloween and you are trapped on the top floor of an old mansion house. There are strange and terrifying things that don't want you to escape so you have to use your skill and judgement to find the stairs and the way out.

This program is in four parts: parts one and two are this week and parts three and four will be in the next two weeks.

Part one is some instructions and a title page with user defined graphics.

How it works Part 1

30-97 draw title page
100-195 play random music, wait for pressed key
200-330 print instructions
400-430 load part two
9000-9050 prints aS
9100-9190 print title block
9200-9270 wait till key pressed
50000-60095 define user characters

The programs will work without this part if you aren't feeling energetic, but it gives the program a bit of atmosphere.

If you have an 8 or 16K RAM pack then part one won't work so just enter part two (it will work without part one).

There's evil lurking. A scene from Psycho II, starring Anthony Perkins

```
1 REM      ********************
2 REM      * ALAN BLACKHAM'S  *
3 REM      *    HALLOWEEN     *
4 REM      *      PART 1      *
5 REM      *     22/08/83     *
6 REM      ********************
7 REM
10 POKE 36879 93 POKE 36869 240
20 GOSUB 50000 POKE 36869 255
30 REM
32 REM ****** TITLE PAGE ******
35 REM
40 REM ****** PRINT 'HALLOWEEN' ******
50 PRINT"OOOOOOOOOOOOOOOOOOOOOO"
55 PRINT"P                   P"
60 PRINT"P  B C C   I L  P"
62 PRINT"P    C C     C C M  P"
64 PRINT"P    C C     C C M  P"
66 PRINT"P A A C C   F I I M  P"
68 PRINT"P    C C   G C C M  P"
70 PRINT"P    C C   D C C M  P"
72 PRINT"P    D D E M D A I  P"
74 PRINT"P                   P"
76 PRINT"OOOOOOOOOOOOOOOOOOOOO
80 PRINT"OOOOOOOOOOOOOOOOOOOOOO"
82 PRINT"O                   O"
84 PRINT"O  BY ALAN BLACKHAM   O"
86 PRINT"O       (/1983)       O"
88 PRINT"O                   O"
[illegible]"
92 PRINT"PPPPPPPPPPPPPPPPPPPPP"
95 PRINT"P     PRESS ANY KEY     P"
97 PRINT"PPPPPPPPPPPPPPPPPPPPP"
100 REM
102 REM ****** PRESS A KEY ******
105 REM
107 POKE 36878 " POKE 198 0
110 FOR I=98 TO 95
120 POKE 36879 I
125 POKE 36876 INT RND(1 *20 +200
130 FORR=1TO50 NEXT R
140 POKE 36876 0
150 GETA$ IFA$  ""THEN 190
160 NEXT I
170 POKE 36874 INT RND(1)*30 +200
180 GOTO 110
190 POKE 36874 0
195 POKE 36878 15
200 REM
202 REM ****** INSTRUCTIONS ******
205 REM
210 POKE 36869 240
220 POKE 36879 9
225 POKE 52 29 POKE 56 29
230 GOSUB 9100
235 A$= YOU ARE IN A SPOOKY" GOSUB 9000
240 A$="MANSION HOUSE   GOSUB 9000
245 A$="IT IS HALLOWEEN AND" GOSUB 9000
250 A$="TO ESCAPE YOU MUST" GOSUB 9000
255 A$="FIND YOUR WAY DOWN" GOSUB 9000
260 A$= THE STAIRS AND OUT." GOSUB 9000
270 GOSUB 9200 GOSUB 9100
275 A$="BUT BEWARE !" GOSUB 9000
280 A$="YOU NEVER KNOW WHO OR  GOSUB 9000
285 A$="WHAT YOU WILL MEET" GOSUB 9000
287 A$= ON HALLOWEEN." GOSUB 9000
297 GOSUB 9200 GOSUB 9100
300 A$="YOU HAVE SEVERAL" GOSUB 9000
310 A$="COMMANDS INCL: G  G" GOSUB 9000
315 A$= GO    GET AND DROP" GOSUB 9000
317 A$="LOOK - WHAT YOU ARE" GOSUB 9000
320 A$="           CARRYING AND" GOSUB 9000
322 A$="EXAMINE  - EXAMINE" GOSUB 9000
324 A$="                SOMETHING" GOSUB 9000
330 GOSUB 9200 GOSUB 9100
400 REM
402 REM ****** LOAD GAME ******
405 REM
410 A$="NOW LOAD PART TWO" GOSUB 9000
415 A$="  OF  HALLOWEEN  " GOSUB 9000
420 A$="         GOOD-LUCK  " GOSUB 9000
425 A$="  YOU WILL NEED IT." GOSUB 9000
430 END
9000 REM
9002 REM ****** PRINT A$ ******
9005 REM
9010 FOR I=1 TO LEN A$)
9020 B$=MID$ A$ I 1)
9025 PRINTB$
9026 IF ASC B$)<48 OR ASC(B$)"95 THEN 9030
9027 POKE 36876 INT RND 1 *10)+128
9028 FOR R=1 TO 10 NEXT R
9029 POKE 36876 0
9030 NEXT I
9040 FORR=1 TO 30 NEXT R
9050 PRINT RETURN
9100 REM
9102 REM ****** TITLE BLOCK ******
9105 REM
9110 A$="                         " GOSUB 9000
```

```
9115 A$="█ █  ALAN BLACKMAN'S      █ █ GOSUB 9000
9120
9125 A$="█ █ H A L L O W E E N.    █ █ GOSUB 9000
9130 A$="█ █                       █ █ GOSUB 9000
9135 A$="█ █                       █ █ GOSUB 9000
9140 A$="██                          █ GOSUB 9000
9190 RETURN
9200 REM
9202 REM ****** PRESS ANY KEY ******
9205 REM
9210 A$="██    PRESS ANY KEY      ██" GOSUB 9000
9220 POKE 198 0
9230 GETA$ IFA$=""THEN 9230
9240 POKE 36876.220
9250 FORR=1 TO 100 NEXT R
9260 POKE 36876 0
9270 RETURN
50000 REM
50002 REM ****** DEFINE CHARACTERS ******
50005 REM
50006 POKE 36878 15
50007 A$="█████------------------         " GOSUB 9000
50010 A$="██P L E A S E   W A I T !  GOSUB 9000
50015 A$="██-----------------------" GOSUB 9000
50020 POKE 52 28 POKE 56 28
50025 FOR I=7168 TO 7679 POKEI,PEEK (I+25600) NEXT I
50030 X=7167
50035 X=X+1
50040 READ A IF A=-1 THEN 50050
50045 POKE X A GOTO 50035
50050 PRINT"[clr]" RETURN
60000 REM
60002 REM ****** DATA FOR CHARACTERS ******
60005 REM
60010 DATA 65 65 65 65 65 65 65 65
60015 DATA 65 65 127 127 65 65 65 65
60020 DATA 62 127 65 65 65 65 65 65
60025 DATA 64 64 64 64 64 64 64 64
60030 DATA 64 64 64 64 64 64 127 127
60035 DATA 65 65 65 65 65 65 127 62
60040 DATA 65 65 65 93 [illegible] 85 65 55
60045 DATA 85 95 85 9[illegible] 45 [illegible] 65 45
60050 DATA 65 [illegible] 65 65 [illegible] 35 1 [illegible]
60055 DATA [illegible] 127 64 64 64 64 64 [illegible]
60060 DATA 64 64 [illegible]
60065 DATA 64 64 64 64 64 64 [illegible]
60070 DATA 65 97 [illegible]
60075 DATA [illegible]
60080 DATA [illegible] 63 63 [illegible]
60085 DATA 0 255 255 255 255 255 255 0
60087 DATA 255 255 255 255 255 255 255 255
60090 REM ****** END OF DATA ******
60095 DATA -1 -1
```

Part 2

Part two is the first part of the adventure. You have several commands to enter. They are

Examine
Look
Go
N,E,S and W
Shoot
Get
Drop

In the game you are faced with a screen like

```
        HALLOWEEN
-------------------------
       You are in a
        Dark Room
-------------------------
     VISIBLE EXITS: N E
-------------------------
       You can see
          Wolf
          Mat
-------------------------
        What now
           ,
```

This means you are in a dark room and the ways out are North and East. In the room there is a Wolf and a Mat.

So now you can enter Look and that will tell you what you are carrying, if you want to go North you enter N.

If you want to put something down you enter 'Drop' and then what you want to drop. If you want to pick up the mat you would enter 'GET MAT'. If you wanted to examine the Mat you enter 'Examine Mat' and the computer will say something like:

"The mat is dirty"

All you have to do is to work out how to find the stairs and get on to part three of Halloween.

You can play part two without part three so you can try and get to the stairs and then get next weeks magazine and type in part three

Hints on conversion

This program should be very easy to convert to any micro because it uses no commands that only the VIC has. It's all PRINT and IF...THEN statements.

How it works
Part 2

100-245 print information
300-400 check for examine
400-500 check for N,E,S or W
500-600 check for Look
600-700 check for Get
700-800 check for Drop
800-900 check for other commands
9000-9060 print well done etc
9100-9150 print bad luck etc
40000-40025 initialise
40100-50060 set up variables etc

Variables

I,J and R FOR loops
PS,N,E,S,W. data
NM$ your input
e$ temp store
F(1 to 10) flags
IS(1 to 10) items in rooms
I(1 to 10) where items are
C(1 to 20) what items you are carrying
no number of items
RO room you are in

Warning: Get a friend to type in lines 800 to 900 because if you do it, you'll find out how to get to the stairs and then there is no fun in the game

Special Commands

POKE 36879,X change screen colours
POKE 36878,1 to 15 volume
POKE 36874 to 36877 sound channels
POKE 1984,o clear keyboard buffer
SYS 64802 reset computer

```
1 REM    ********************
2 REM    * ALAN BLACKMAN'S  *
3 REM    *    HALLOWEEN     *
4 REM    *      PART 2      *
5 REM    *   [illegible]    *
6 REM    ********************
7 REM
9 PRINT"[clr]"
10 POKE 36879 8 POKE 36878 15
17 GOSUB 40000
100 REM ****** INPUT COMMAND ******
105 PRINT"[clr] H A L L O W E E N "
108 PRINT"█----------------------"
110 PRINT"█    YOU ARE IN A "
[illegible]
150 PRINT"█ VISIBLE EXITS" [illegible]
155 REM ****** [illegible] ROOM ******
[illegible]
200 REM ****** INPUT WHAT TO DO ******
[illegible]
245 [illegible] GOTO 100
300 REM ****** [illegible] ******
[illegible]
400 REM ****** CHECK FOR [illegible] ******
[illegible]
500 REM ****** [illegible] ******
[illegible]
600 REM ****** [illegible] ******
605 IF MID$(NM$,1,3)="GET" THEN 700
610 E$=MID$(NM$,5,20)
620 FOR I=1 TO NO
625 IF I(I)<>RO THEN 645
630 FOR J=1 TO 100
632 IF MID$(I$(I),J,1)<>" "THEN NEXT J
635 Q$=MID$(I$(I),2 [illegible]
640 IF Q$<>E$ THEN 645
642 IF MID$(I$(I),1,1)="0" THEN PRINT"IT'S TO HEAVY!" GOSUB 50015 GOTO 100
643 [illegible]
644 [illegible] PRINT"YOU CAN'T CARRY ANY MORE " GOSUB 50015 GOTO 100
645 NEXT I
647 PRINT"I CAN'T SEE THAT" GOSUB 50015 GOTO 100
700 REM ****** CHECK FOR DROP ******
705 IF MID$(NM$,1,4)<>"DROP" THEN 800
710 E$=MID$(NM$,6,15)
715 FOR I=1 TO [illegible]
720 FOR J=1 TO 100
722 IF MID$(I$(I),J,1)<>" "THEN NEXT J
725 Q$=MID$(I$(I),2,J-2)
730 IF Q$=E$ THEN 750
735 NEXT I
740 GOSUB 50000 GOTO 100
```

```
750 IF C(I)=0 THEN GOTO 740
755 C(I)=0:I(I)=R0
756 IF NM$="DROP GUN" THEN F(2)=0
757 IF NM$="DROP KEY" THEN F(3)=0
760 CN=CN-1
790 GOTO 100
800 REM ****** CHECK FOR OTHERS ******
805 IF NM$<>"GET MAT" THEN 820
807 IF F(2)=1 THEN 100
810 PRINT"A GUN FALLS FROM IT"
812 NO=NO+1:F(2)=1
8   IF NO=1"GUN(LOADED)":I(10)=R0
818 GOTO 750
820 IF NM$<>"OPEN SAFE" THEN 830
822 IF R0<>  THEN GOSUB 50000:GOTO 100
823 IF F(  )=0 THEN PRINT"I CAN'T YET":GOSUB 50015:GOTO 100
824 IF F(8)=  THEN 100
825 PRINT"THERE IS A KEY IN IT"
826 NO=NO+1:F(8)=1
827 I(NO)=R0:I$(NO)="KEY A DOOR KEY":GOTO 812
830 IF NM$<>"OPEN DRAWER" THEN 840
832 IF R0<>4 THEN GOSUB 50000:GOTO 100
835 PRINT"SOME VAMPIRE BATS FLY OUT OF IT AND KILL YOU"
837 PRINT"      BAD LUCK":GOTO 9100
838 GOTO 9100
840 IF NM$<>"OPEN CUPBOARD" THEN 850
842 IF R0<>4 THEN GOSUB 50000:GOTO 100
845 PRINT"THERE ARE SOME NUMBERS ON THE INSIDE"
84  F(1)=1:GOTO 100
850 IF NM$<>"SHOOT WITCH" THEN 860
852 IF R0<>9 THEN GOSUB 50000:GOTO 100
853 IF F(2)=0 OR F( )=0 THEN PRINT"I HAVEN'T GOT A GUN":GOSUB 50015:GOTO 100
854 I$(  )="WITCH(DEAD)":F(  )=1
856 GOTO 100
860 IF NM$<>"OPEN DOOR" THEN 870
862 IF R0<>9 THEN GOSUB 50000:GOTO 100
863 IF F(6)=0 OR F(9)=0 OR F(  )=0 THEN PRINT"I CAN'T YET":GOSUB 50015:GOTO 1
00
864 I$(6)="DOOR(OPEN)":F(4)=1
865 GOTO 100
870 IF NM$<>"  DOOR" THEN  80
872 IF R0<>2 THEN GOSUB 50000:GOTO 100
87  IF F(4)=0 THEN PRINT"I CAN'T YET":GOSUB 50015:GOTO 100
875 GOTO 4000
880 IF NM$<>"  " THEN  00
890 IF NM$<>"GET GUN" THEN F(  )=  :GOTO 100
900 IF NM$<>"GET KEY" THEN F(3)=  :GOTO 100
910 IF NM$<>"  " THEN 100
915 GOSUB 50000:GOTO 100
4000 REM ****** LOAD NEXT PART ******
4010 PRINT"  WELL DONE"
4020 PRINT"YOU HAVE FOUND THE STAIRS TO THE NEXT FLOOR."
4030 PRINT"
40   FOR I=1 TO 250
4034 POKE 36   :NEXT
40   POKE 36   0
4040 PRINT"NOW LOAD PART THREE"
```

```
4050 END
9 00 REM ****** LOST ******
9 02 FOR I=  0 TO 250 STEP  1
9 08 POKE 36   I:NEXT I
9 09 POKE 368   0
9110 PRINT"  DO YOU WANT ANOTHER   GAME (Y OR N)?"
9120 POKE 198 0
9130 GET A$:IF A$<>"N"AND A$<>"Y"THEN 9130
9140 IF A$="Y" THEN RUN
9150 SYS 64802
40000 REM ****** INITIALISE ******
40010 DIM F(  ),I$(20),I(20),  (20)
40015 NO=16:  =1:  =  
40100 REM ****** DATA FOR GAME ******
40110 DATA SMALL ROOM 0 0 0 2
40115 DATA CORRIDOR 0 1 0  
```

```
40120 DATA DARK ROOM   0 0
40125 DATA LARGE ROOM 6 0 0  
40130 DATA BED ROOM   4 0 0
40135 DATA DUSTY ROOM 0 4    
40140 DATA DIRTY ROOM 0     0
40145 DATA PASSAGE 0 0 4 9
40150 DATA CORRIDOR 0   0 0
40 90 DATA END
40200 READ A$:IF A$<>"END" THEN 40200
40205 FOR I=1 TO 16
40210 READ I$(I),I(I)
40220 NEXT I
40225 RETURN
40230 DATA TIN CAN(EMPTY) 1 NAIL(RUSTY) 
40235 DATA PAINTING ON THE WALL 2 LIGHT SWITCHED ON 2
40240 DATA SAFE(LOCKED) 3
40245 DATA DRAWER(CLOSED) 4 CUPBOARD(CLOSED) 4
40250 DATA LOAF OF MOULDY 5 RADIOGRAM(BROKE) 5
40255 DATA DEAD RAT(STIFF) 6 OPEN WINDOW 6
40260 DATA DOOR(SCREWED DOWN) 7 MAT(WOOLEN) 7
40265 DATA WITCH(DEAD) 8
40270 DATA WITCH(ANGRY) 9 DOOR(LOCKED) 9
50000 REM ****** DON'T UNDERSTAND ******
50010 PRINT"I DON'T KNOW HOW TO   "NM$
50015 FOR I=  TO  
50020 FOR I=200 TO 220
50030 POKE 36   I:POKE 36874,I+10
50040 FOR R=  TO 5:NEXT R,I
50050 POKE 36875,0:POKE 36874,0
50060 RETURN
```

OUT-OF-THIS-WORLD OFFER...

50 GAMES

£9.95 INC. VAT, POST & PACKAGING

CASSETTE 50
for your MICRO

•SPECTRUM •ORIC-1 •ATARI•
•ZX81 •DRAGON •BBC A/B
•VIC 20 •apple •

ORDER NOW!

GALACTIC ATTACK
SPACE MISSION
LUNAR LANDER
PLASMA BOLT
STARTREK
RADAR LANDING
ATTACKER
GALACTIC DOGFIGHT
Z ON ATTACK
VASIVE ACTION
OXO
BOGGLES
PONTOON
SKI JUMP
HANGMAN
[illegible]
[illegible]

MAZE EATER
ORBITTER
MOTORWAY
FORCE FIELD
NIM
TUNNEL ESCAPE
BARREL JUMP
CANNONBALL BATTLE
OVERTAKE
SITTING TARGET
SMASH THE WINDOWS
SPACE SHIP
JET FLIGHT
PHASER
INTRUDER
INFERNO
GHOSTS

SUBMARINES
ROCKET LAUNCH
PLANETS
BLACK HOLE
DYNAMITE
DO YOUR SUMS
DERBY DASH
SPACE SEARCH
UNIVERSE
RATS
TANKER
PARACHUTE
JETMOBILE
HIGH RISE
THE FORCE
EXCHANGE

WE BUY GAMES CONTACT US NOW

CASCADE SOFTWARE
CASCADES HOUSE
LLANDOGO
MONMOUTH
GWENT
S WALES NP5 4PA

I ENCLOSE CHEQUE/PO FOR £9.95 (WHICH INCLUDES VAT AND DELIVERY) HCW30

PLEASE SEND ME 50 GAMES ON A CASSETTE FOR MY ______________ COMPUTER

NAME ______________

ADDRESS ______________

HCW 1.9.83

New games: how do they play?

Adventure and arcade games for the Spectrum are given the once-over by our panel of reviewers

Devils of the Deep 48K £6.50

Richard Shepherd Software, Elm House, 23 25 Elmshott Lane, Cippenham, Slough, Berks

In Devils of the Deep you are a diver searching Atlantis for a lost treasure while trying to avoid the giant electric eels

You have limited reserves of strength and oxygen, but may pick up items from the sea bed to replenish them or to attack the eels Otherwise you can escape by hiding behind the ruins or skipping into the next sector of the seabed

The display of this adventure game shows a three dimensional representation of Atlantis, with ruined buildings and assorted debris, and the diver is moved by the cursor keys leaving foot prints in the sand

Very useful instructions are given on the cassette inlay, and the program loaded easily The graphics are bright and cheery, but all the sectors look much the same The diver moves slowly, and there seem to be few monsters, so the game soon palls

The game can be saved and restarted later, but running out of strength means a long wait while a new game is generated

H.W C.

instructions	80%
playability	60%
graphics	75%
value for money	60%

★ ★ ★

Maziacs 48K £6.95

dk'tronics, Shire Hill Industrial Estate, Saffron Walden, Essex

This game must be seen to be believed One of the best uses of Spectrum in all aspects that I have seen

with more variations than most — you only see about one fiftieth of the maze on the screen at a time. The rest moves in as you run along its paths. You can view about a twelfth of the maze by pressing V.

Having loaded the tape (machine code) you press any key for instructions These are extremely good and you move quickly onto the game The object is to run through the maze to pick up some treasure, this being about 200 moves from the start

On the way you meet the Maziacs who you fight till death

Around the maze you come to food to keep you going and also prisoners who actually show the way by marking your path in **yellow for a number of moves. You may pick up replacement swords but cannot carry both a sword and the treasure.**

There are different levels of difficulty, which you don't have to use immediately because a completely new maze is created for each game you play So you will not tire of playing again and again

C McL.

instructions	100%
playability	95%
graphics	95%
value for money	100%

★ ★ ★ ★ ★

Hard Cheese £5.95

dk tronics, Shire Hill Industrial Estate, Saffron Walden, Essex

This game reminds me a little of the arcader Mr Do, except that you play a bulldozer instead of a pixie The fact that I have played Mr Do in the arcades helped enormously since absolutely no playing instructions were supplied with the game

The idea is to create tunnels with your buildozer and hide from the ferocious foremen running about in these tunnels.

When a foreman comes too close for comfort you can fire a block of concrete at him — definitely not good for labour relations, though Placed around the screen are concrete slabs and these can be consumed for points, but the really big score comes when you tunnel a hole under an apple causing the apple to fall on a foreman

Once all the foremen have been cleared a new screen is created along with more maniac management to pursue you

Once I understood it, I thoroughly enjoyed this game The graphics are mediocre and movement is a little jerky, but this is more than made up by excellent use of sound with no less than three catchy tunes thrown in for good measure Squashing a foreman with an apple results in an explosion of sound — all on my little Spectrum

T.B.

instructions	10%
playability	75%
graphics	55%
value for money	75%

★ ★ ★ ★

Greedy Gulch 48K £4.95

Phipps Associates, 99 East Street, Epsom, Surrey KT17 1EA

This is an adventure game set in a deserted Wild West mining town and the aim is to find a gold nugget and bring it back to the sheriff's office

Each obstacle overcome adds to your score Full instructions are displayed at the beginning of the game The display shows a series of scenes or sections of a map and the instructions, reports and clues as text above or below it

The player must pick up a number of objects — maps, guns, lamps and so on — which he will need later, and find his way through the hazards to his target There are many branch routines, some with useful items, some just dead ends — literally, which means he can die of thirst in the desert

The usual GO EAST, PICK UP type of instructions are used, and there are HINT and HELP options, though they are often quite unhelpful The program allows the game to be saved and restarted later if required

This is a most attractively presented game with excellent graphics It loaded easily and there did not appear to be any bugs, and the instructions are comprehensive and easy to follow

H.W.C.

instructions	90%
playability	80%
graphics	90%
value for money	90%

★ ★ ★ ★ ★

3D Luna Crabs £6.95

Micromega, 230-236 Lavender Hill, London, SW11 1LE

Yet another bunch of aliens for you to blast out of existence in this very well written arcade game

This time you are stuck on an alien planet in a crawler that has lost part of its power All you can do is to spin round and fire your cannon at the little crabs who have the disgusting habit of galloping up and spitting acid balls at you

Each crab you kill with your photon cannon counts for 10 points and there is a bonus after each 15 you get

The graphics really are excellent and the whole program responds extremely quickly to the keyboard The crabs are rather Earthlike and don't look at all menacing but they still kill

I did feel, though, that there could have been a bit more in the game to generate more interest Perhaps a giant turtle which requires a lot more direct hits to kill could be added

The only other problem that I found was that the game starts running without a pause on loading, so you can lose a couple of lives while you are sorting out your tape recorder

It is a great pity that, with so many programs, when you have been killed off the computer asks you to press a key for another go, but not to end the game

N B.

instructions	90%
playability	75%
graphics	100%
value for money	85%

★ ★ ★ ★ ★

MR. CHIP SOFTWARE

VIC 20 GAMES AND UTILITIES

JACKPOT
This is it, the ultimate Fruit Machine for the VIC with nudge, hold and respin 100% machine code. "Overall Jackpot is a beautifully written simulation giving superb graphics, animation and use of colour. In fact, this program makes Commodore's Fruit Machine cartridge look unbelievably cheap & nasty." Home Computing Weekly No 20 19/7/83 .... £5.50

KWAZY KWAKS
Accuracy and speed are required for this Shooting Gallery, superb use of colour & graphics in this new and challenging game from the author of **Jackpot**, 100% machine code, joystick or keyboard control £5.50

PACMANIA
Choose your own game from the following options — difficulty 1 2, speed 1-3, size of maze 1-3, visible or invisible maze, still or moving power pills, define your own key controls, any combination, if this is your type of game, then this is the one for you, for the 3K expanded VIC only, (available Now) £5.50

SNAKE BYTE
Guide your ever hungry snake round the screen, eating the flies and wasps, to stay alive you must avoid the deadly mushrooms, quick reactions are required for this biting game, keyboard control, for the unexpanded VIC, (available NOW) £5.50

BUGSY (Joystick Only)
This is a Minefield with a difference as you step on the stones whilst collecting purple boxes which give you both time and points, they disappear from beneath your feet, DO NOT DESPAIR! "BUGSY" will randomly replace the stones but avoid bumping into him or its sudden death! An original compulsive and challenging game £5.50

MINI-ROULETTE — PONTOON — HI-LOW
Three great games of chance for the VIC, try to beat the computer, hours of fun, full colour, sound effects and tunes £5.50

DATABASE — create your own files and records on tape £7 50

SUPER BANK MANAGER — A full feature version any memory size, but needs 3K expansion £7.50

COMMODORE 64 GAMES AND UTILITIES

WESTMINSTER
A game for up to four players, can you lead the party of your choice and win the general election, you tour the 60 constituencies (seats) buying votes, when you can (just like the real thing), this must be one of the first board type games specifically written for the computer Why play on your own, have fun with your family and friends playing WESTMINSTER £5.50
(available from the 15th Sept)

LUNAR RESCUE
Our new version, avoid the asteroid belt, to rescue the stranded scientists, then fight your way back to the mother ship, fast reactions are required to safely land and dock your lunar module £5.50
(available now)

PONTOON — ROULETTE ACE'S HIGH More powerful versions, that make three great games of chance for the 64 £5.50

M/C SOFT 64 — Assembler and Disassembler, with decimal to hex converter, everything our program for the VIC will do and more £7.50

BANK MANAGER — As our Super Bank Manager, but for the 64 £7 50
Now available on disc with added facilities £10.00

Full documentations with all utility programs

Other software available for the VIC and Commodore 64, send for free brochure, including **RABBIT SOFTWARE** at £5.99 each

Send Cheques/PO's to: **MR CHIP SOFTWARE**

Dept HCW, 1 NEVILLE PLACE, LLANDUDNO,
GWYNEDD LL30 3BL. Tel: 0492 49747

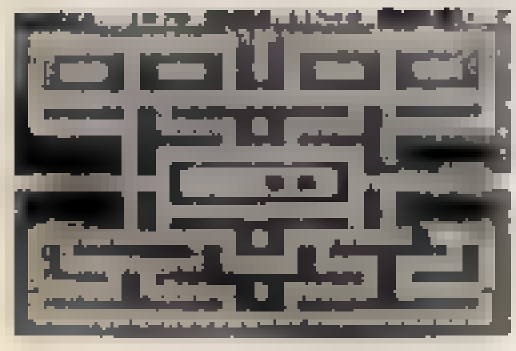
WANTED: HIGH QUALITY SOFTWARE, OF ALL TYPES, FOR EXPORT & U K. DISTRIBUTION

All programs now available on disc please allow £2 50 ea extra

DEALER ENQUIRIES WELCOME

DJL SOFTWARE

DEPT HCW, 9 TWEED CLOSE, SWINDON, WILTS SN2 3PU
Tel: (0793) 724317 Trade enquiries welcome
Export Orders: Please add £1.00 per tape airmail



ZUCKMAN

ZX81 (16K)

- *ALL MACHINE CODE (10K)
- *FOUR INDEPENDENT GHOSTS
- *HIGH-SCORE 'HALL OF FAME'
- *AUTHENTIC ARCADE ACTION
- *TITLE/DISPLAY MODE

ONLY £4.95 INC. P&P

FROGGY

ZX81 (16K)

- *MOVING CARS, LOGS, TURTLES
- *ALLIGATORS, DIVING TURTLES
- *FOUR 'SCREENS' OF ACTION
- *ALL ARCADE FEATURES
- *ENTIRELY MACHINE CODE

ONLY £4.95 INC. P&P

NEW NEW

ZX Spectrum

FROGGY 16K or 48K

Spectrum version of Arcade Game with Full Arcade Features:—

- *Fabulous Hi-Res Colour Graphics
- *Authentic Sound Effects + 3 Tunes
- *3-D Logs Swimming & Diving Turtles
- *3 Lanes of Multi-coloured vehicles
- *On-screen Score. Hi-Score. Time-bar
- *Snake Alligators and Baby Frog
- * Top 5 High-Score initials table
- *Demonstration Game routine

Your home-sick frog must leap across a busy main road then onto logs and turtles in the river to reach safety of the river-bank frog-homes

THIS MACHINE-CODE GAME MUST BE SEEN TO BE BELIEVED!!
ONLY £5 95 INC P&P

FROGGY
ZX SPECTRUM 16K/48K

How to corner the software market

Lyversoft, software originators and wholesalers, are selling software in the strangest places. Managing director Barry O'Neill told Dave Carlos all about it

Just think...no more long bus rides, no more waiting weeks for the post to arrive or for your favourite software to become available in your local shop. All that could become a reality if a new idea being promoted by Lyversoft works out

This brainwave is Computer Corners, which provides a service for shops who have no computer expertise, but who want to sell software. Lyversoft will set up such 'corners' and stock them with top-selling games cassettes for a wide variety of micros.

The idea came from Barry O'Neill, managing director of Lyversoft, who tried it out in four local shops to start with

"It went so well that since February we have had to become software wholesalers. We have corners in shops of all varieties, wine, video and record, greengrocers, garages, and newsagents.

"Retailers were frightened and bewildered by the vast number of titles and types of software available, so we help by stocking their shelves with proven best sellers, either 50, 100 or 150 titles. We can also supply books and magazines if required "

Computer Corners have now caught on to such an extent that five full-time staff now take orders from shops at least once a week and then supply from vans or by mail. The operation grew out of the other Lyversoft activities of software publishing and retailing

Equipment Centre, is right in the heart of Liverpool, at 66 Lime Street. It sells only software, magazines and books, and the company claims to stock over 600 software titles already, with a planned 1,000 or more by Christmas. What is more they have programs for nearly every home computer

Jim Pendlebury, who joined the company from Rumbelows in March, said that they "intend to be the biggest software shop in the North West of England or even the entire UK". Their range covers all kinds of programs, games, adventures, business packages and the educational titles which Jim believes will be the big growth area of the future

It was from the shop that the software publishing side of the business sprang. "In Autumn 1982, some of our customers started to bring in their programs which we just sold in plain packaging on a purely local basis They sold very well, and proved popular enough for us to collect together a package for full release in April this year."

The original release was of six VIC-20 games, some of which had two programs on the cassette

"Apple Bug and Crazy Climber seemed to catch the imagination and did much better than even we expected", Barry recalls. These programs were all written by 13 to 18 year olds, some of whom are now employed as consultants advising on new software that comes in

Another of the company's new ideas is to provide a room in the shop for their programmers, all whom are freelance, to meet, swop ideas and hold Think Tanks. "We believe that the discussions they have can only help the program quality and assist in the conversion of a program from one machine to another, something we expect to do more of soon", said Barry

Now, with a range of programs already established, Lyversoft is preparing for the release of another group which should be ready by November. The list is provisional as yet but covers many more micros and types of program

These are in the hands of Paul Foster who recently rejoined the company after taking an extended computer course and who originally joined them after management experience with Habitat

There could be five releases for the Spectrum. Liberator, a pilot's eye view shooting game, Lunar Rescue, converted from the VIC, Golf, a double games pack and one game that is too secret even to mention

There should be a database from the BBC, which Paul is currently working on, two releases for the Dragon 32, Picture Puzzler, which has a moving block theme, and Humanoid Invader which Barry described as "an inverted space invader game"

They are not abandoning the VIC, however and have several titles for that micro too. One, called Space Eggs is a shooting game, Digger will be a two-level arcade type game, Hopping Mad (guess what?) and a space adventure game.

A number of ZX81 games are also under consideration

All these new releases, together with the existing operations, need a great deal of money. It is here that the parent company comes into its own

As Barry said "We started this side of the business back in September 1981 when very few companies were involved The company's background in computers and office equipment meant we had the technical background needed. Now business has grown to such an extent that I have been seconded from the board to oversee Lyversoft's development

"Having the shop means we know what is selling and how far out some of the published charts are in this respect. We look forward to the price of machinery dropping even more, as this can only help everyone — Lyversoft included."

Barry O'Neill (right) and Jim Pendlebury of Lyversoft — helping the retailers

Practical programs: how they perform

A selection of serious software is put through its paces by our team of reviewers

BC BASIC Commodore 64 £19.95

BC Computers, 31A Grosvenor Avenue, Long Eaton, Nottingham

BC BASIC is a cassette-based BASIC extension with extra commands for hi-res, sound, sprites and various other elements.

To use BC BASIC you must first load it into memory — which takes about five minutes. You are now ready to go.

The hi-res/screen commands are not very advanced; they do nothing more complicated than draw lines and plot points. Compared with Simon's BASIC this is not a lot. Simon's can fill complicated areas, draw circles, plot gradients, etc.

The sound commands make your programs more readable. They do away with lists of POKEs and allow a wide range of control over the SID chip. Unlike Simon's BASIC they do not allow music composing.

Sprite commands allow you to define sprites and characters. There is a long list of sprite setting commands. I found these quite pointless — they do nothing a POKE or two to the VIC chip cannot do.

Finally, the structured programming commands include features such as IF..THEN..ELSE, REPEAT..UNTIL. There are also commands to read the joysticks, paddles, user-port and keyboard.

To sum up, I found well over half have a single PEEK/POKE equivalent. This more or less rendered most pointless to me. Simon's BASIC offers an extensive range of extremely useful and powerful commands.

Graphics and sound sections of the manual explain some related instructions, for the rest you must hunt through the glossary. It would have been better organised into subject sections, as Commodore has done with Simon's BASIC.

At £20 it is a few pounds over priced. It is, however, a fairly cheap way of getting hi-res and sound commands. The package is well below the standard of Simon's BASIC, but if your budget only runs to about £20 then this is available and it does seem to work well. You only get what you pay for.

K.I.

instructions	50%
ease of use	70%
display	60%
value for money	50%

★ ★ ★

GP COPY BBC B £3.95

Logic Systems, Cambridge Rd, Gornal, Dudley DY3 2UR

This program is for those BBC owners with a Seikosha GP80,100 or 250 dot matrix printer. It allows high resolution screens to be copied to the printer at the touch of a button.

The routine loads into a reserved section of memory and is accessed by a three-line addition which you simply tack on to the end of your graphics program.

It will produce a screen copy in modes 0,1,2,4 and 5, and has the option of altering which logical colour on the screen will be represented by black on the printer.

If you don't want to use up half a printer ribbon in one go it is better to set the printout background colour to white, so that all black sections of the screen appear white on the copy. This does not affect the rest of the colours, which appear in shades of grey.

The routine took approximately six minutes to produce a mode 0 dump with most of the screen used.

Instructions were clear, but the manufacturers do recommend that users read their printer manuals carefully before using the copier. Even so the routine was very easy to use, only requiring the press of any key to produce the printout.

D.A.

instructions	70%
ease of use	80%
display	n/a
value for money	96%

★ ★ ★ ★

First Aid 48K Spectrum £4.99

Network Computer Systems

This BASIC program is a comprehensive guide to first aid, presented in a lively and interesting manner. It's easy to use and rewarding.

On loading, you are presented with a menu with options for, studying the whole course, revising any topic, or testing yourself on any topic. The list of topics comprises, scope of first aid, body mechanism, asphyxia, bleeding, broken bones, burns and scalds, poisoning, shock, and emergency procedures. In short all you need to know.

The program really gets to the heart of the matter (sorry!) with concise and lucid text displays. These are supported by simple but effective diagrams. For example, the blood circulation is shown in full colour with sound effects for the pulse. You study at your own pace, the next page being accessed by pressing any key.

When you answer questions, the program compares your input with key words held in a string variable. This means it will accept the right words in a line full of gibberish! Also, it doesn't tell you which of the words in your answer were the right ones. Despite these drawbacks, it's satisfying when you score well.

C.C.

instructions	90%
playability	80%
graphics	80%
value for money	80%

★ ★ ★ ★

Beebcalc BBC B £19.95

Gemini Marketing, 18 Littleham Rd, Exmouth, Devon

[illegible] allows the user to design and set up spreadsheets. It is well documented, easy to load and the screen display excellent, enabling a non-experienced person to use it with ease.

The spreadsheets can have up to 50 rows, 26 columns and each column can be up to 32 characters wide. Each cell accepts text or numerical data. A formula can be assigned to individual cells and the formula can relate to the numerical contents of other cells combined with a wide range of mathematical functions, and will accept any valid BBC expression.

Cells are accessed by direct command or by cursor keys, the screen scrolling as required. The information regarding any cell is easily manipulated and the program will automatically recalculate after each entry or it can be set to calculate the whole sheet after all changes have been made.

Screen display is in colour and information concerning the current cell, such as contents, related formula and prompts are displayed at the bottom of the screen. Other information regarding modes and cell number are shown above the spreadsheet.

J.H.D

instructions	85%
ease of use	85%
display	90%
value for money	90%

★ ★ ★ ★ ★

'NOW WIN THE POOLS'

THIS IS MEANT FOR YOU — ESPECIALLY IF YOU USE A SINCLAIR ZX81 or SINCLAIR SPECTRUM COMPUTER, or even ANY COMPUTER.

HAVE YOU EVER HAD THAT DREAM OR EVER WISHED THAT YOU HAD "WON ON THE POOLS" — AT LAST YOU CAN TURN IT INTO REALITY

THERE IS A SECRET OF "HOW TO WIN ON THE FOOTBALL POOLS" — **IT CAN BE DONE.** I DISCOVERED THE SECRET A LONG TIME AGO - NOW, **FOR THE FIRST TIME** I'M PREPARED TO SHARE IT WITH YOU

HOW DOES THIS INTEREST YOU — I HAVE DOCUMENTARY EVIDENCE BY WAY OF POOLS WINNINGS DIVIDEND SLIPS/CANCELLED CHEQUES, etc, SHOWING MY PRESENT WINS ON THE POOLS AS FOLLOWS —

First Dividends	Second Dividends	Third Dividends	Fourth Dividends	Fifth Dividends	Sixth Dividends
765	1,818	2,942	1,952	631	93

A GRAND TOTAL OF 8,201 (EIGHT THOUSAND, TWO HUNDRED AND ONE DIVIDENDS — so far)

I HOLD THE UNCHALLENGED WORLD'S RECORD FOR POOLS WINS

I AM MAKING THIS VERY SPECIAL, REDUCED PRICE OFFER TO READERS OF HOME COMPUTING WEEKLY FOR A LIMITED PERIOD ONLY.

Do not let anyone tell you that it is impossible to "WIN ON THE POOLS" — since I perfected my method, **I HAVE WON REGULARLY** for over **TWENTY-FIVE YEARS** — proof that it is no 'flash-in-the-pan'

I have CHALLENGED THE WORLD with my record of wins and with all the evidence that I possess — NO ONE has ever been able to accept the Challenge — I KNOW NO ONE EVER WILL.

MY SECRET IS NOW PLACED ONTO COMPUTER CASSETTE FOR YOU.

THE METHOD IS THE GREATEST TREBLE CHANCE WINNER IN THE HISTORY OF FOOTBALL POOLS — IT WILL LAST FOREVER — BOTH FOR ENGLISH AND AUSTRALIAN FOOTBALL POOLS, WITH EQUAL SUCCESS

I now intend to give a limited number of people the opportunity of making use of my method — perfected over 25 years and proving itself on **EVERY ONE OF THOSE TWENTY-FIVE YEARS.**

You will have noted details of my personal achievements so far, as given to you above

A GRAND TOTAL of 8,201, yes 8,201 POOLS DIVIDENDS, including **765 FIRST DIVIDENDS.**

My Pools Winnings Dividend slips now number so many, that they fill a very large suitcase and will stand as my evidence of all claims in **ANY COURT OF LAW IN THE WHOLE WORLD.**

Taking just the past 25 years into consideration, I have won ON AVERAGE over 328, (THREE HUNDRED AND TWENTY—EIGHT) Pools Dividends **EVERY YEAR** — or — AN AVERAGE of over **SIX DIVIDENDS EVERY WEEK** for **TWENTY—FIVE YEARS.**

You have my absolute Guarantee of the complete authenticity of every claim, cheque, document, letter, etc, contained herein.

I do have losing weeks, but ON AVERAGE my winnings show over SIX DIVIDENDS **EVERY WEEK** for the past 25 years

I know that you are now utterly flabbergasted, it always happens to everyone with whom I come into contact. Please just sit back and **imagine** for a moment my **FIRST DIVIDEND** wins alone — they now number 765 (seven hundred and sixty-five) and will probably be even more by the time this advertisement appears in print

I AM NUMBER ONE IN THE WORLD AND NO ONE DISPUTES IT

For as long as I continue to enter the Football Pools my wins will continue. I have already said, they apply, with equal success to both English and Australian Football Seasons.

I intend to release a STRICTLY LIMITED NUMBER of copies of my cassette, (either for Sinclair ZX81 or Sinclair Spectrum) — DO NOT DELAY AND FIND YOU ARE TOO LATE, in which case I would have to refund your money

I am so confident of **YOUR** success that if do **not** win at least THREE FIRST TREBLE CHANCE DIVIDENDS in the first 20 weeks of entering, I will completely cancel the balance of the purchase price and you do not have to pay me another penny, at any time, no matter how vast your winnings.

I only wish that space would allow me to give you photographs of my winnings slips, cancelled cheques, etc, but it is of course impossible — they now number 8,201 dividends. I have however given JUST A FEW EXTRACTS from ORIGINAL LETTERS I hold from my small Clientele.

I am the Inventor and Sole Proprietor of my method, Registered as EUREKA — ("I have found it"). I am known as The Professor in Pools Circles — I am of the Highest Rank in Forecasting — this is beyond dispute. I am marketing a limited number of Computer Cassettes, under my Registered Company — FOOTBALL ENTERPRISES.

My initial charge for a copy was £75, but for this SPECIAL REDUCED PRICE OFFER I will send you a copy, (for ZX81 or Spectrum) for £20, (twenty pounds) ONLY, plus your Promise to pay me the balance of £55 — **ONLY** IF YOU WIN AT LEAST THREE FIRST TREBLE CHANCE DIVIDENDS IN YOUR FIRST 20 WEEKS OF ENTERING — otherwise you owe me NOTHING FURTHER.

This is surely proof absolute of my supreme and utter confidence in my own abilities and in the capabilities of my discovery. I could easily CHARGE £2,000 per cassette on the evidence I possess, but that would not be fair to everyone, which is what I want to do

My method is WORLD COPYWRIGHT, any infringement and immediate proceedings will be taken, without prior warning. It is truly ingenious and has stood the test of time

My cassette is simplicity itself to operate and you'll be given FULL DETAILS for weekly calculating. Your entry need not involve you in any large weekly stakes, you can enter for as little as 25p, if you wish.

I charge NO COMMISSION on any of your wins — no matter how BIG they may be

I realised a long time ago, that it was no good sitting down and **dreaming** about winning the pools, so I burnt the candle at both ends, working late into the night, occasionally RIGHT THROUGH THE NIGHT, I **KNEW** there was a way, eventually it all paid off and has been doing so ever since

I am unable to vary my offer to anyone, so please do not request it, as I shall very easily dispose of the cassettes I have prepared and am making available.

IMMEDIATELY I perfected my method I commenced winning right away, (first with just a little £163, the first week I used it), I HAVE NEVER LOOKED BACK SINCE, amongst all those dividends was one for over **EIGHT THOUSAND POUNDS** for just **one eighth of a penny stake.**

I will release a copy on cassette, to you, on receipt of the completed order form and your Signature thereon, confirming you will treat it in the STRICTEST CONFIDENCE between us and retain it for your **OWN USE ONLY.**

PLEASE NOTE:
If you happen to be the proud owner of a Computer, **other than** a Sinclair ZX81 or Sinclair Spectrum, you can still purchase a copy of my method, for the same price and program it YOURSELF on to YOUR OWN COMPUTER

Don't take my word for it, read what people write about me and my method:—

I won on Zetters last weekend. It was not a big sum, but all the same it was a very nice surprise for me. J.C., Lancs.

I appreciate the straightforward method you adopt, which is such a contrast to the rubbish of misrepresentation which is so common in the Betting World, by unscrupulous and self-opinionated charlatans. C H., Devon

Winnings cheque received today, sincere thanks. D.N., Devon

I congratulate you on your achievement. R R., Wales

I should like to thank you for a most exciting season and look forward to hearing from you again. J.C., Hants

I would like to acknowledge cheque and say how much I appreciate your integrity. J M., Scotland

Many thanks for your system, it is all you say and more. J.C., Lancs.

Your wonderful system won me £3,527. I intend to visit London soon and will be able to come and see you personally. (Overseas Client). F M., Kampala.

Many thanks for trying so hard to please us all, your brother should be thanked also. One of our daughters, WHOSE HUSBAND YOU HELPED ENORMOUSLY, has just phoned, the four of them have just spent a lovely holiday in Spain. K R ,Isle of Man.

I sent in my FIRST entry last week and won 2nd and 3rd dividends, as you will see from the enclosed certificate. One more and I would have collected over £400 for FIRST dividend. Once I've won a fair amount I shall be staking from winnings and at 2p per line, A FIRST DIVIDEND last week at this would have been over £3,000. C.A., Yorks

I am very interested indeed and enclose £20 herewith. I agree to pay you the balance of £55 **ONLY** if I win at least THREE FIRST TREBLE CHANCE DIVIDENDS in my first 20 weeks of entering — otherwise I owe you NOTHING FURTHER at any time — no matter how much money I win. My Signature below is my Undertaking to retain complete and absolute confidence about the method.

Name……

Address

Signature HCW30

The Managing Director,
Football Enterprises,
'Aaron',
9 New Road,
Haverfordwest, Pembs.

Please tick if cassette is for:
Sinclair ZX81 (16K) ☐
Sinclair Spectrum (48K) ☐
Any other Computer ☐

HOME COMPUTING WEEKLY CLASSIFIED

Lineage:
35p per word — Trade
25p per word — Private
Semi display: £6.00 per single column centimetre
; Ring for information on series bookings/discounts.

All advertisements in this section must be prepaid
Advertisements are accepted subject to the terms and
conditions printed on the advertisement rate card (available on request)

01-437 1002
EXT 282.

Send your requirements to:
Debra Stupple
ASP LTD.
145 Charing Cross Road,
London WC2H 0EE

ACCESSORIES

Atari 400/800 'Supaklone'. Don't risk losing your favourite programs! Supaklone copies most m/c-Basic cassettes (including bootable) £15.95 (post free). Supaklone, 42 Avon Drive, Huntington, York YO3 9YA

PROGRAMS MAKE MONEY
SELL YOUR PROGRAMS QUICKLY AND EASILY THROUGH H.C.W. SOFTWARE SECTION.
RING 01-437 1002 EXT 213.

ELKAN ELECTRONICS

NEW! NEW!

NANOS "quick-reference" cards — easier to use than the manuals!

Dragon 32	£3 95
Commodore 64/VIC 20	£3 95
Sinclair ZX81	£3 40

QUICK-SHOT self-centring joysticks — improve your scores!

Dragon 32 (specially developed by ELKAN)	£14 95*
Atari 400/800	£12 95*
Commodore 64/VIC 20	£12 95*

*£1 p&p

ELKAN ELECTRONICS, FREEPOST
1 Bury New Road, Prestwich
Manchester, M25 6LZ. Tel 061 798-7613

Speed up the action with

PICKARD JOYSTICK CONTROLLER

Allows use of any keys, not just cursors — no special programming — does not affect other add-ons — special price until the end of June
Price: £19 95 + £1 50 p&p
Spectrum ZX81 compatible

Success Services, 154 High Street, Bloxwich, Walsall, West Mids WS3 3JT.
Tel: (0922) 402403

BOOKS

BOOK SALE?
IT COULD BE YOUR BOOKS FOR SALE.
RING 01-437 1002 EXT 213 NOW.

MICRO TAN 65 OWNERS

The Micro Tan 65 is back
If you want to be kept up to date with the latest news — reviews — hardware and software products, then you should subscribe to

The Micro Tan World Magazines

Published by Microtanic Computer Systems Ltd, the new owners of the Micro Tan 65 system. Please send £10 for 1 year's subscription to

MCS Ltd
16 Upland Road
Dulwich
London SE22
Tel: 01-693 1137

FOR HIRE

To Hire a Computer from ZX81 upwards, ring or write to: Business and Computer Services, 292 Caledonian Rd., N1 1AB Tel 01-607 0157

Oric Software Library. Two weeks hire £1. Annual Membership £5 Stamp for list. Les Wilson, Penallick, Tintagel, Cornwall

FOR SALE

VIC-20, cassette recorder, joystick and two cartridges, £150 o.n.o. Tel (01) 470 3221

TI99/4A extended BASIC plus speech synthesizer and 7 cartridges. (Actual cost £350) £150 o.n.o. Ring. 0444 455 433

SERVICES

ZX81 REPAIR SERVICE
AT LAST NO NEED TO WAIT FOR WEEKS

Send your faulty ZX81 for fast reliable repair. We will repair any ZX81 KIT or READY BUILT UNIT Only £15.95 fully guaranteed + p+p £1 75
Please state the nature of problem Send cheque or postal order to NEXT COMPUTER SYSTEMS, 89 HARVEST RD, (H C W) ENFIELD GREEN SURREY TW20 0QR

ALL YOUR CASSETTE NEEDS

Blank cassettes C15 with case, 40p each
Labels in Blue, White or Yellow, 20 for 36p Inlay cards in Blue, Red or Yellow 20 for 60p Library cases, 9p each
Postage on each complete order 55p
Stonehorn Ltd, (HCW), 59 Mayfield Way, Barwell, Leicester LE9 8BL

DO YOU OFFER A SERVICE PEOPLE IN COMPUTING REQUIRE? IF SO WHY NOT TELL THEM ABOUT IT?
RING 01-437 1002 EXT 213, TO APPEAR IN THE SERVICES SECTION.

SOFTWARE GAMES

MYSTERIOUS ADVENTURES

For the BBC Micro and 48k Spectrum (*Spectrum version with high res graphics*)
choose from the following titles:—

1. The Gold Baton
2. Time Machine
3. Arrow of Death (Part 1)
4. Arrow of Death (Part 2)
5. Escape from Pulsar 7
6. Circus
7. Feasibility Experiment
8. The Wizard Akyrz
9. Perseus and Andromeda
10. Ten Little Indians

Each one only £9 95 incl. Available from

Digital Fantasia
24 Norbreck Road, Norbreck
Blackpool, Lancashire
Tel (0253) 591402
Trade Equiries welcome

LANTERN SOFTWARE
TI99/4A

High quality arcade games and utilities inc., Troll King and Daddie's Hotrod. S.A.E. for details to: 4 Haffenden Road, Tenterden TN30 6QD.

REGENCY SOFTWARE
Special Offer on Com. 64 games

Ape Craze
Centropod
Sketch & Paint
Escape MCP

only £4.99 inc P&P

Cheques/PO's or SAE for details to

Regency Software, PO Box 28, Ascot, Berkshire SL5 7RR
Tel: 0990 22707
Trade enquiries welcome

Avalon Computing

A comprehensive range of software titles Spectrum 16K/48K, Vic 20, Dragon, Oric, Commodore 64, BBC, Atari 400/800

Egs

AH Diddums (Spectrum)	5 49
Monster Mine (Dragon 32)	7 95
Frantic (Vic 20)	5 49
4D Terror Dactyl (Spectrum)	5 99
Attack of Mutant Camels (Com 64)	6 99
Space Pirates	5 49

(inc VAT) plus 100's more titles at competitive prices. Send a large sae for catalogue p&p 50p per order or free for 2 tapes.

Avalon Computing, 14 Cliff Rd, Hornsea, N Humberside HU18 1LL.
Tel: 04012 2791

Andromeda Software presents outstanding value for the TI99/4A Gran Pree and TI Cricket in Exbas plus Pirate Island for unexpanded machine. Available soon for other computers. Superb quality, only £4 99 each SAE for more details 56 Wells Street, Haslingden, Lancashire

ZX81 16K King Kong 100% machine code arcade game. Three different screens with fast, conveyors, barrels, fireballs, and pins, only £2.95. Ring R. E. Oliver on Gainsborough 788598

DID SOMEONE SAY CAPTAIN PHOENIX?

DISCOUNT SOFTWARE
SPECTRUM, ZX81, !
DISCOUNTS UP TO 25%

	R.S.P	Our Price
The Hobbit (Melbourne)	£14.95	£11.99
Knight's Quest (Phipps)	£5.95	£4.65
Zoom (Imagine)	£5.50	£4.29
3D Tanx (DK Tronics)	£4.95	£3.70
Kong (Ocean)	£5.90	£4.60

55p p&p one tape. Two or more post free. SAE. 45 Brunswick, Bracknell, Berks

TEXAS/COMMODORE

Starfighter joystick, £13.95
Texas adaptor, £9.95. 99 Vader (Basic)/Laser Tank (ext. Basic), £7.95. Galaxions (64)/Starquest (VIC-20), £7.95.

Extensive list available send SAE for details and state model.
To: Loade Enterprises, c/o Ensemble, 35 Upper Bar, Newport, Shropshire (HCW) TS10 7EH

SPECTRUM PROGRAMMES

Gnasher £4.95, Arcadian £4.95, Escape £4.95, Backgammon £5.95.

All 16K and many more. Crossed cheques/PO's to: VYAJYS HK or SAE. For full list to VYAJYS HK, 11 Margaret Avenue, St. Austell, Cornwall.

SOFTWARE APPLICATIONS

SPECTRUM KOPYKAT £4.95

SIMPLY THE BEST. Play tape to be copied then press a key for back-up copy. Any ZX Spectrum program easily duplicated. Programs over 41.9K (8.7K for 16K machines) are copied with ease. 100% machine code. Plus, FREE Tape-Header Reader program IMMEDIATE DESPATCH Send cheque/PO to:
MEDSOFT
61 Ardeen Rd., Doncaster, S.Yorks
DN2 5ER.
IT CAN EVEN COPY ITSELF

TIRED OF YOUR COMPUTER?
WHY NOT SELL IT *AND* BUY A NEW ONE
RING 01-437 1002
EXT 213.
AND SELL THE WEEK AFTER.

FREE offer, 16K ZX81 owners send SAE to: Pacsoft, 26 Stray Road, Burnholme, York, for details.

Spectrum 16K. Fast table generator, columns 21 characters, maximum variables, X31 rows. Any number of columns on ZX printer £4.00. L. W. Green, 14 Silverbank Crescent, Banchory, Scotland.

WANTED

WANTED

High quality software of all types for the VIC, CBM 64 and Spectrum for export and UK distribution. Could your program be No. 1 in Isreal, Norway or Canada? Tel: (0492) 49747 or write to:

**Mr Chip Software,
1 Neville Place,
Llandudno,
Gwynedd
LL30 3BL.**

PROGRAMMERS WANTED (Basic/Machine) for most home micros to develop own and house progs. Write Computer Shop Software, PO Box 29, London SE3 7AU.

SOFTWARE EDUCATIONAL

Have the TI99/4A teach your children multiplication with "Times Table Tuition" at £4.50.
— four levels of development
— optional speech facility
— designed and approved by Mathematics teachers

**S. Jamieson, 8 Long Row,
New Lanark, Strathclyde,
ML11 9DD.**

CHEMISTRY EXAMS? NO PROBLEM WITH ALCHEMY SOFTWARE. 6 programs covering FORMULAE and CALCULATIONS for 0/CSE each with extensive notes for ZX81 and SPECTRUM. Send SAE for details to ALCHEMY, 78 TWEENDYKES ROAD, HULL.

REACH THE RIGHT AUDIENCE AT THE RIGHT PRICE. PHONE 01-437 1002, EXT 282

TI99/4A Biology Assessment 0-level and 0-grade programs. 1. Respiration/Photosynthesis; 2. Reproduction/Genetics; 3. Feeding/Digestion; 4. Water balance/Transport systems. £3.50 each. £6.50 any two. £9.00 any three. £11.00 all four. F. Thornhill, 5 Highburgh Drive, Rutherglen, Glasgow G73 3RR.

USER GROUPS

Britain's TI99/4A independant group, newsletters, TI-module exchanges membership £5 p.a. sae TI-users, 40 Barrhill, Patcham, BN1 8UF.

Dragon 32 user group. Phone: Slough 35268, ask for John, FREE to join.

DO YOU HAVE ENOUGH STAFF TO COPE WITH LISTING YOUR SHOP IN THIS SECTION? FOR MORE CUSTOM LIST YOUR SHOP AND LOCATION.
RING 01-437 1002
EXT 213.

NATIONWIDE SHOPS & DEALERS

SURREY

SHEENSOFT

Top Name Software at Rock Bottom Prices.

All Imagine Tapes at £4.75
Manic Miner at £4.95

Send cash with order or SAE. For full list.

All callers welcome at 1, The Parade, Lower Richmond Road, Richmond, Surrey.
Tel: 878 0530.

SCOTLAND

TO BE INCLUDED IN THIS SECTION RING 01-437 1002

STAFFS

**Computerama-
The Midlands
Home Computer
Specialists**

FOR BBC, SPECTRUM & ALL LEADING MICRO'S

STAFFORD: 59 FOREGATE ST
TEL: 0785 41899
STOKE-ON-TRENT:
MARKET SQUARE ARCADE
TEL: 0782 268620

LONDON

SOFT MACHINE

A large selection of the very best software, books and some accessories available for ZX81, Spectrum, BBC, Dragon, VIC-20 and Commodore-64 microcomputers at:
3 Station Crescent, Westcombe Park, London SE3.
Tel: 01-305 0521, or send SAE for free catalogue (state which computer).

WARWICKSHIRE

**Carvells of Rugby Ltd.
3/7 Bank St., Rugby.
Tel: 0788 65275/6**

VIC-20 starter pack computer + C2N Tape Unit, intro to Basic Pt 1 and 4 games. Only £134.00, usually, £154.95. Texas TI99/4A, now only £99.95 + unbeatable Texas offer
We also stock BBC B, Electron, CBM 64, Spectrum + Software books. Phone or visit soon.

VIDEO GALAXY

NO. 1 FOR HOME COMPUTERS AND SOFTWARE

Commodore 64	only £199.95
Dragon	only £164.95
VIC-20	only £133.95
Spectrum	only £98.95
Spectrum 48K	£127.95

100s of games, books and accessories available for all popular home computers including BBC.

**VIDEO GALAXY
293 CHISWICK HIGH ROAD
LONDON W4
TEL: 01-994 4947**

Please include my business details in the next available issue of Home Computing Weekly

Business Name: ....

Address: ....

....

....

Tel. No. ....

Open Hrs: ....

Contact (Office Use Only): ....

Post To: H.C.W. (Shops & Dealers), 145 Charing Cross Rd., London WC2H 0EE.

£6 per single column cm or phone us for series discount.

CLASSIFIED ADVERTISEMENT — ORDER FORM

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.
13.	14.	15.

PREFERRED CLASSIFICATION

Please place my advert in Home Computing Weekly for weeks.
Please indicate number of insertions required.

Advertise nationally for only 25p Private, 35p Trade per word (minimum charge 15 words). Simply print your message in the coupon and send with your cheque or postal order made payable to Argus Specialist Publications Ltd to:

CLASSIFIED DEPT., HOME COMPUTING WEEKLY,
145 Charing Cross Rd., London WC2H 0EE.
Tel: 01-437 1002.

Name ....
Address ....
....
....
Tel. No. (Day) ....

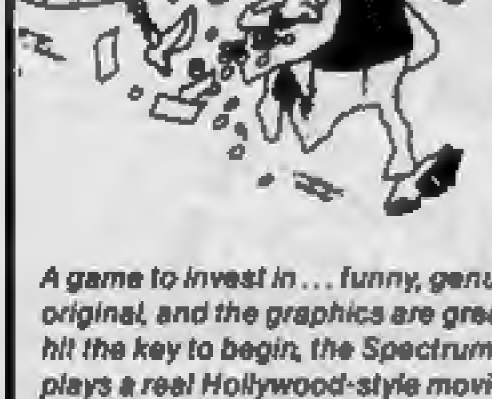
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

MIKRO-GEN

presents TWO great games from Saturn Developments

The chart-hitting

Mad Martha



Poor little Henry is the hen-pecked hero of this domestic tale. One night Henry can take no more. He steals his wages from his wife's purse, and sneaks out of the house being careful not to wake the baby or trip over the cat, and heads for the bright lights to have some fun. Trouble is he runs out of money. His only way to raise some cash is to gamble his few remaining pounds on the spinning wheel of the roulette table.

Just as Henry is getting in to his evening at the tables his wife — Mad Martha — has noticed his absence. Realising Henry has absconded with the housekeeping she sets out after him with an axe.

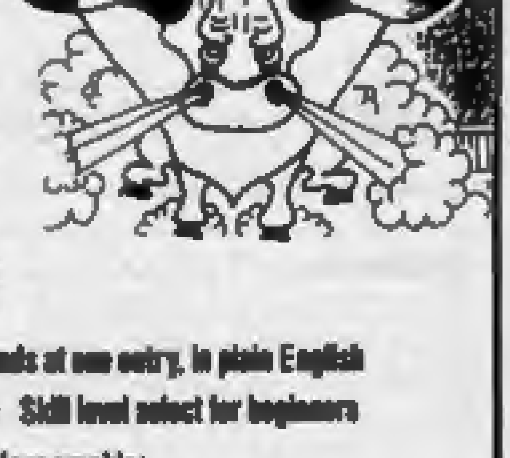
Guess what part you play in this happy tale? That's right, you're Henry. Watch out for that axe!

And now —

Mad Martha II

Time for the annual holiday and Martha decides to visit her half-cousin Manuel, who is a waiter in a plush hotel in Barcelona.

One afternoon, Martha sets out on a bus tour with her son, young Arbuthnot, leaving orders for Manuel to keep an eye on Henry. Unbeknown to Martha, crafty Henry has a Spanish pen-pal, and has planned a secret rendezvous. Henry leaves the hotel, brimming with enthusiasm and Manuel (who is totally wacky!) is hot on his trail. The adventure takes us through the thrills and spills of a madcap chase, taking in amongst other delights, a bull fight in which poor Henry is forced to play the leading role. Guaranteed laughs and fun for all the family!



FOR 48K SPECTRUM ONLY £6.95 *Post & Packing 40p*

A game to invest in ... funny, genuinely original, and the graphics are great ... hit the key to begin, the Spectrum plays a real Hollywood-style movie theme tune, and the hunt is on!
Personal Computer News

Marvellous adventure, really dotty ... a refreshing change from some of the doomladen programs encountered nowadays ... a game where you won't get to the next stage without solving the present conundrum.
Popular Computing Weekly

- ★ Full adventure format — accepts multiple commands at one entry, in plain English
- ★ Witty, intelligent replies to commands
- ★ Skill level select for beginners
- ★ Every location in full screen, high-res, colour graphics
- ★ Three exciting arcade-type games as an integral part of the adventure
- ★ Full help facility and save game command

Available from retail outlets or direct from:
MIKRO-GEN, 1 Devonshire Cottages, London Rd, Bracknell RG12 2TQ

OR PHONE YOUR ACCESS/VISA NUMBER: (0344) 27317 (9am-5pm)

HAVE YOU BEEN INVOLVED IN A MYSTERIOUS ADVENTURE RECENTLY?

If so, it is quite probable that you are presently suffering from TIS, more commonly known as Total Involvement Syndrome.

TIS manifests itself in a number of ways, one of the most dramatic symptoms being a victim's complete inability to feel at ease in the world of reality. Other symptoms include insomnia, a desparate need to play a Mysterious Adventure, and an overwhelming sense of acute enjoyment.

Experts believe that TIS is usually contracted as a result of prolonged exposure to Mysterious Adventures, this is commonly caused by owning any of the following Home Computers:-

48K SPECTRUM, BBC MODEL A OR B, TRS80, COLOUR GENIE, ATARI 400/800, COMMODORE 64, DRAGON 32, 16K ZX81, LYNX etc.

When questioned about this epidemic, a representative of DIGITAL FANTASIA, a company who are actively involved in research and development work on Mysterious Adventures said, "There is probably no cure for TIS other than mains failure, faulty RAM chips etc. which can be at best only a Temporary solution". "In the absence of a more permanent cure, I would advise TIS sufferers to submit to the Syndrome and obtain Mysterious Adventures from any sources available to them". "TIS is highly contagious and in view of the current Worldwide Epidemic, I would say enjoy it while you can, resistance is futile".

If you have a BBC Computer, Commodore 64, 48K Spectrum, Atari 400/800, or Dragon 32 you can obtain Mysterious Adventures in any of the following dosages:-

1) THE GOLDEN BATON
2) THE TIME MACHINE
3) ARROW OF DEATH (PART 1)
4) ARROW OF DEATH (PART 2)
5) ESCAPE FROM PULSAR 7
6) CIRCUS
7) FEASIBILITY EXPERIMENT
8) THE WIZARD AKYRZ
9) PERSEUS AND ANDROMEDA
10) TEN LITTLE INDIANS

Each Dose costs £9.95 including V.A.T. and Postage. Excellent quantity Discounts are available for Pushers.

D.F. MENTAL HEALTH WARNINGS. MYSTERIOUS ADVENTURES CAN SERIOUSLY DAMAGE YOUR SENSE OF REALITY.

For BBC, 48K Spectrum order from:-

DIGITAL FANTASIA
24 NORBRECK ROAD, NORBRECK, BLACKPOOL, LANCASHIRE.
ENGLAND FY5 [illegible] TEL. [illegible]

[illegible] Commodore [illegible]
Dragon 32 order [illegible]

[illegible] 8 SOFTWARE
[illegible] RGATE, PRESTON.
[illegible] TEL. (0772) 53057

Cuthbert Goes Walkabout

0213
1000
AVAILABLE FROM Boots
and John Menzies SHOPS

Cuthbert is on the Lunar Landing Pad, waiting for the Federal Chief's State Visit. He must turn the lights on by walking across the switches, located at the corners of the squares, before the invading Moronians get him. Watch him do his Victory Dance before he tackles the next "Pad" and another, larger, set of Moronian Invaders. Can you get your name in the Hall of Fame?

Superb full colour graphics with accompanying music.

All Cassettes £8 each
(Includes VAT & Postage)
AVAILABLE FROM DRAGON 32 DEALERS NATIONWIDE OR ORDER DIRECT FROM:

MICRODEAL

41 Truro Road St. Austell
Cornwall PL25 5JE
Tel: 0726 67676

Send 1st class stamp for FREE Software Lists for Dragon and Tandy range of computers